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ABSTRACT

Focusing on graduates of cooperative vocational programs at the high school level, a study described and analyzed the in-school and post-high school labor market experiences of 427 students enrolled in four different programs during their junior and senior years: cooperative vocational, regular vocational, work study, and general academic. The (male) students, who attended eighteen high schools in nine Massachusetts cities and towns, were interviewed first while seniors and then after graduation (in spring 1972) in three followup interviews over an eighteen-month period. Interviews with students prior to graduation elicited information concerning employment experiences during high school (labor force participation, weeks of employment, unemployment experiences, occupations and industries of jobs held, wages, and on-the-job training) and post-high school plans. In subsequent interviews students were questioned as to their first post-high school job, labor force participation, employment experience, unemployment experiences, and wages. In general, the successes of graduates from cooperative vocational programs were not significantly greater than those of graduates from other programs. Irrespective of the high school program, the amount of work experience during the high school years was a significant factor leading to success in the transition from school to the labor market. (YLB)

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THE TRANSITION FROM SCHOOL TO WORK: THE CONTRIBUTION OF COOPERATIVE EDUCATION PROGRAMS AT THE SECONDARY LEVEL

by

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U.S. DEPARTMENT OF HEALTH,
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The major goal of the study is to determine whether graduates of cooperative vocational programs at the high school level are better able to make the transition to, and become established in, the labor market than graduates of other high school programs. In general, the successes of graduates from cooperative vocational programs were not significantly greater than of graduates from other programs. Irrespective of the high school program, the amount of work experience during the high school years was a significant factor leading to success in the transition from school to the labor market.

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PREFACE

The problems that youth face in the transition from school to work are many. The major objective of this study was to determine whether students in cooperative vocational programs made a smoother and more effective transition into the labor market upon graduation from high school than did students in other programs. A sample of 427 students in four different types of high school programs were interviewed while seniors, and again after graduation in a series of three follow-up interviews over an 18-month period. In addition, interviews were held with program administrators and staff in each of the eighteen high schools attended by the sampled students and with school department officials of the communities in which the schools were located.

No field research can be conducted without the cooperation and assistance of many persons. The study depended upon the cooperation of dozens of school and community officials, and of 427 students, whose anonymity must be protected. Each, especially the students, participated in an extensive interviewing procedure. Ms. Peggy Holloway is deserving of particular praise for her valuable contributions to the day-to-day management of the project during its first three years of operations. Thanks are due to Jeff Zornitsky for his computer programming services. Our research assistants spent many hours and evenings on the telephone, conducting follow-up interviews. We owe a special thanks to them because of the difficulties they encountered and surmounted. And without the financial support of the Office of Research and Development of the Employment and Training Administration, DOL, in Washington, this study could not have been made. We are particularly indebted to Dr. Howard Rosen, Director of ORD, and to his associate, Ms. Karen Greene, our project officer, who gave unstintingly of her time, comments and suggestions. The findings and conclusions are ours, and we are prepared to accept responsibility for errors.

The manuscript has gone through a number of drafts. The responsibility for final typing and proofreading was that of Ms. Susan Worton and Ms. Pauline Sayers, who were assisted by Ms. Sheila Palma. We thank them all for a job well done. We gratefully acknowledge the difficulties involved.

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TABLE OF CONTENTS

Preface v

Executive Summary ix

Chapter I Introduction 1

Chapter II Research Methodologies Employed 15

Chapter III The High School Programs 41

Chapter IV The Employment Experiences of Students During the High School Years 61

Chapter V The Jobs Held by Students 113

Chapter VI Post-High School Plans of Students 143

Chapter VII The First Post-High School Job 163

Chapter VIII Comparison of Key Aspects of the Post-High School Labor Market Experiences of Sample Members 203

Chapter IX Employment and Educational Plans 241

Chapter X Findings of the Multivariate Statistical Analysis 263

Chapter XI Summary of Findings and Implications for Policy 346

Appendix A 1972 Interview Questionnaire 365

Appendix B Summary and Conclusions of Interim Report on Class of 1966 375

EXECUTIVE SUMMARY

This study provides both a description and an analysis of the in-school and post-high school labor market experiences of a sample of 427 students who were enrolled in four different types of high school programs during their junior and senior years. These four program categories were cooperative vocational (coop), regular vocational (voc ed), work study, and general academic. A major objective of this study was to determine the extent to which students who participated in cooperative vocational programs succeeded in making a smoother and more effective transition into the labor market upon graduation from high school.

This brief summary presents the major findings of the study and the policy implications for youth vocational education, employment and training programs.

Scope and Coverage of Study

The 427 students graduated from their high schools during the Spring of 1972. The schools they attended were located in nine different cities and towns in one metropolitan area within the State of Massachusetts. Students from 18 different high schools were interviewed during the course of the study, including nine schools located within the central city of the metropolitan area. The distribution of the students by type of program was as follows: cooperative vocational, 127; regular vocational, 99; work study, 88; and general academic, 113. The students were interviewed once during the senior year and either two or three times during the post-high school, follow-up period.

The In-School Labor Market Experiences

(1) Labor Force Participation. Students of the coop programs did not participate in the labor force to a significantly greater degree than their peers of either the regular vocational or general academic programs; work study students did, however, participate to a significantly greater degree than did the other students. The students in all four programs tended on average to participate quite actively in the labor force an average of 74.5 weeks, or nearly 72 percent of the total number of weeks during the two-year time period.

(2) Weeks of Employment. Coop students did not have significantly more weeks of employment while in school than their counterparts in the voc ed or general academic programs. Work study students did, however, have significantly more than the other students. The typical student of the four programs was

employed for a substantial number of weeks (36.8) during the last high school year. Both Black and Spanish-speaking students were significantly less likely to be employed than other students during their junior and senior years.

(3) Unemployment Experiences. There were no significant differences in the mean absolute number of weeks of unemployment encountered by students in the four programs. There was, however, a rather substantial amount of variation in the unemployment experiences of individual students. The mean number of weeks of unemployment during this two-year period was 5.8. The mean relative amounts of unemployment also did not vary significantly among the students in the four programs. Students who participated more actively in the labor force as juniors and seniors encountered, ceteris paribus, significantly fewer weeks of unemployment in both an absolute and relative sense.

(4) Occupations and Industries of Jobs Held. The coop students were more likely to be employed in the goods producing sectors of the local economy, particularly construction and durable goods manufacturing, during both their junior and senior years. For example, during the senior year, 58.2 percent of the jobs held by coop students were in construction and manufacturing. Between 60 percent and 70 percent of the jobs obtained by the other students were in retail trade, wholesale trade, and the private services sector of the local economy. In reference to occupations, students in the coop programs were significantly more likely to be employed in craftsmen-related and operatives occupations during both their junior and senior years. For example, during their senior years, 71.7 percent of all the jobs held by coop students were in those occupations. Nearly one-half of all the jobs obtained by the other students were as laboreres and service workers.

(5) Average Hourly Wages. The mean hourly wages earned by students on jobs held during the junior year ranged from a low of $2.01 for coop students to a high of $2.12 for students in both the voc ed and general academic programs. None of the differences in wages was significant at the .05 level. The mean hourly wages of jobs obtained by students during their senior year ranged from a low of $2.16 for coop students to a high of $2.38 for students in the academic programs. The difference of $.22 was found to be statistically significant at the .05 level.

(6) Gross Earned Incomes. The mean level of gross earned income during the junior and senior years combined for the students was $3970, with a standard

deviation of $2524. Coop students did not earn significantly higher incomes than students in either the voc ed or the general academic programs. Students in the work study programs did, however, earn significantly higher gross incomes than students in the other three programs. These work study students earned, ceteris paribus, approximately $950 more than students in general academic programs.

(7) On-the-Job Training. Approximately one-third of the jobs containing some type of training component provided longer-term skills training for coop students, in comparison to only 18.0 percent, 13.2 percent and 15.9 percent of the jobs held by students in the voc ed, work study and general academic programs, respectively.

The Post-High School Labor Market Experiences

(1) Time Required to Obtain the First Post-High School Job. More than 75 percent of the graduates who held at least one job during the post-high school, follow-up period were able to obtain a job within one week of the date of their graduation from high school. The proportion of cooperative program graduates finding a job within one week of graduation (75.7 percent) was not significantly different from the proportions of graduates from the other programs. A relatively high proportion of the first post-high school jobs obtained by graduates from the cooperative and work study programs were "carry-over" jobs that had been held either full-time or part-time during the school year (approximately 54 percent and 59 percent, respectively).

(2) Characteristics of First Post-High School Jobs. Approximately 53.5 percent of the first post-high school jobs obtained by coop graduates were in the durable manufacturing and construction industries, while only 31.0 percent of the first jobs held by voc ed graduates were in these same two industrial sectors. Graduates of the vocational, work study, and general academic programs were substantially more likely to be employed in retail trade and in private services. Nearly 72 percent of the coop graduates held jobs in crafts-related and operative occupations, in comparison to 52.3 percent, 34.3 percent and 28.6 percent of the graduates of the voc ed, work study, and general academic programs, respectively.

(3) Beginning Hourly Wages and Weekly Hours of Work. The mean beginning hourly wage of the first post-high school jobs obtained by the graduates of these programs was $2.53, with the coop graduates having the lowest ($2.40)

and work study program graduates the highest ($2.67). The comparable wages of graduates from the regular vocational and general academic programs were $2.49 and $2.61, respectively.

Graduates of the cooperative programs were, however, significantly more likely to work full-time on their first post-high school job. More than 94 percent of the coop graduates worked 35 or more hours per week on their first job compared to about 75 percent of the graduates from the other programs.

(4) Labor Force Participation. Coop graduates as a whole did not participate in the civilian labor force during the follow-up period to a significantly greater degree than graduates of the general academic programs. Graduates of the vocational and work study programs did participate in the civilian labor force to a significantly greater degree than graduates of these general academic programs.

(5) Employment Experiences. Graduates of the coop programs were not employed to a significantly greater extent than graduates of the other programs. The only significant difference during the follow-up period was that the work study program graduates enjoyed significantly more employment than the general academic program graduates.

(6) Unemployment Experiences. During the follow-up period, the graduates of these four high school programs were unemployed on average only 8.3 percent of the weeks in which they participated in the civilian labor force. Coop students were, ceteris paribus, just as likely to be unemployed to the same relative degree as graduates of the other high school programs.

(7) Average Hourly Wages. The average hourly wage of all jobs held by the graduates during the follow-up period was $2.91, with a standard deviation of $0.62. None of the major high school programs had a statistically significant impact upon the average hourly wages of the graduates. The average hourly wages of graduates were significantly influenced by the number of weeks of employment that they had obtained during both the high school years and the post-high school, follow-up period.

(8) Hourly Wages on Last Job Held. The mean hourly wage of the jobs held by graduates at the time of the final interview was $3.37, with a standard deviation of $1.01. Again, none of the major high school programs had a significant impact upon the hourly wages of the last jobs held by the graduates. Coop graduates did not earn significantly higher wages than graduates of the other three types of high school programs.

Policy Implications of the Findings

The findings of this study have provided a mixed set of conclusions with respect to the effectiveness of cooperative high school programs. The coop students typically did not experience significantly higher rates of labor force participation, obtain more weeks of employment, earn higher hourly wages, or encounter lower rates of unemployment than their counterparts in the other programs during either the high school years or the 18-month post-high school, follow-up period. On the other hand, the coop students were significantly more likely to value the jobs they held in high school years, to claim that their high school programs favorably affected their decisions to remain in school, to attend class during the senior year, to obtain a full-time job immediately following graduation, to obtain a job related to their high school program, and to be more satisfied with their final jobs.

The overall findings of the study with respect to the in-school and post-high school labor market experiences of the students appear to have a number of implications for the future design of educational employment, and training policies of youth:

(1) Irrespective of vocational content, high school programs that provide both intensive job placement assistance and high support services to students can have a significant impact upon their labor force and employment experiences during the high school years and the immediate post-high school period.

(2) Students with the longest periods of participation in the labor force during their high school years, irrespective of the type of high school program in which they were enrolled or the type of work, tended to experience significantly lower absolute and relative amounts of unemployment during both the high school years and the immediate post-high school period.

(3) Students in cooperative programs were significantly more likely to obtain jobs both in high school and in the immediate post-high school period that provided some types of training, particularly on-the-job training that developed work skills beyond a few days of informal instruction.

(4) The vast majority of the students in all programs lacked basic information about the local labor market, including "where one would go to look for work". A major role remains for state and local educational agencies to improve the knowledge students have about the operation of the local labor market.

(5) If the choice were between a regular vocational and a coop vocational program, the ability of the latter to enroll more students in the same physical plant would tend to make it more "cost-effective", all things being equal. In turn, work study programs would be more cost-effective than either of the vocational programs.

(6) Public policy should concentrate on (a) creating a corps of professional high school employment counselors, as distinct from guidance counselors; (b) providing detailed information on continuous basis about the quantity and quality of job opportunities for youth in the local labor market; and (c) developing a corps of job developers who would maintain close continuous links with local employers.

(7) The large employer would or could not employ young people under 18 years old. Legislative changes in workmen's compensation laws as well as changes in insurance practices probably would be necessary to open jobs to high school youths in primary employers in manufacturing and in transportation, communication and public utilities. Changes in state and municipal civil service regulations might also be necessary to accomodate high school students.

Chapter I

INTRODUCTION

Finding a permanent niche in the labor market probably has never been an easy task for most young people finishing their education, and it probably never will be, given the continually changing structure of employment in industrial nations. Moving from full time school to full time work may never become trouble free; still, its burdens can be reduced. For example certain educational programs might be more successful than others in easing or simplifying occupational choice and attendant job-seeking efforts. Currently existing secondary school programs might be examined to see which prepare their students better for successful participation in the labor market. The more effective programs, or their more fruitful characteristics, then could be encouraged.

The Problem

The purpose of this study is to test the efficacy of different secondary school programs in meeting this objective of attaining a successful labor market role. The study compares four basic programs in communities in a metropolitan area of the Northeast during the late 1960's and early 1970's. These programs are cooperative vocational, regular vocational, general academic, and work study.[1] Excluded are college preparatory programs. The study is limited to male students, primarily because there were no females in coop programs in the area. Two samples of students were included, those from the class of 1966 and those from the class of 1972. For reasons soon to be discussed, it was expected that cooperative vocational would prove the best. The Problem: Becoming Established in the Full Time Labor Market.

Reynolds and Shister in their seminal examination of the local labor market early noted the fortuitous nature of occupational choice (if it can be so described) by youth from blue-collar families.[2] The typical youngster chose a job, not an occupation. His job search was confined to employers in the immediate vicinity or those in which relatives and friends worked. The choice of an employer then led to a "career". Others have reported a direct connection between the extent of parental occupational and labor market advice and a family's socio-economic status.

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[1] In this report, regular vocational also is called "voc ed", cooperative vocational, "coop", and general academic, "academic". Work study will continue to be identified as work study.

[2] Lloyd J. Reynolds & Joseph Shister, Job Horizons, N.Y., Harper & Bros., 1949. Especially Chapter IV, pp. 52-64.

In addition there has been little in the educational experiences of many youth to prepare them for work, despite national recognition of their problems in the labor market and the enactment of legislation sharply expanding vocational education. Although changes are beginning to appear, college preparatory and general academic curricula, both lacking in vocational content,[1] still predominate at the secondary school level. Many of the non-college bound either are left to drift, unguided, or if considered disciplinary or learning problems, are shunted into trade schools.

Fortunately, entering the adult working world has not been that abrupt for many youths, particularly white youths in working class or middle income neighborhoods. Holding a part-time job during the school year and working full time during school vacations are not uncommon. However, the jobs open to high school students typically are restricted to low level service and manual work with little or no skill training or advancement opportunities. Nevertheless, such jobs do subject youth to the discipline of the work place, although the quality of supervision obviously varies greatly and on the average may be substandard.

The labor market disadvantage of young male workers 16-19 and 20-24 is reflected in comparatively high unemployment rates, much worse for blacks and other minorities than for whites; and during the 1960's and early 1970's, in climbing unemployment rates and sharply falling labor force participation for minorities.[2] The high unemployment rates can be ascribed to inexperience, lack of job skills, inadequate labor market information, limited availability because of school attendance, and employer preferences. When filling entry level jobs, workers in their middle or late twenties are considered more reliable and better motivated; their superior work discipline makes them better learners and more productive employees. Employer preferences for men past their early twenties thus amounts to consigning younger males (who have not attained some critical age) to "teen-age" jobs that offer no future or status, although they are not necessarily poorly paid.

In addition to the usual liabilities of youth, black and other minority youth must contend with discrimination and, compared to whites, with inferior labor market information. Blacks, for example, are less likely to have relatives and friends working in firms identified as "good" employers. Not only is the job mix less favorable in the inner city, but there probably are many fewer teenage jobs, both absolutely and relative to the number of young people.

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[1] Except for students taking typing and similar subjects.

[2] See Tables A-4 and A-20 in the April 1975, Manpower Report of the President.

The extraordinarily large increase in the number of young people reaching working age during the 1960's may have placed an unusual strain on the absorptive capacity of the labor market. It has been argued that if wage rates were flexible enough downward, the demand for labor is sufficiently elastic to absorb all those youth willing to work for the resulting wages. This argument maintains that a rising "social minimum" income, in part due to steadily rising federal minimum wages, has increasingly priced more young workers out of the labor market. Evidence for this assertion, however, is inconclusive.

The pronounced worsening of the position of young black and other minority males may also reflect the migration from the central city of firms with favored labor market reputations and desirable blue collar jobs, and their replacement by a burgeoning service sector with a bimodal job mix. Access to the better jobs requires specific but difficult-to-attain educational credentials or scoring well on difficult-to-pass examinations. The heightened antipathy of youth, and especially minority youth, to jobs considered demeaning and the availability of income for illicit activities contributes to falling participation rates. In addition, the educational disadvantages of minority youth may have not been reduced, despite the shrinking gap in median years of education between whites and non-whites. The quality of inner city education compared to that of other areas may actually have decreased. The absolute number and proportions of minority youth who have not finished the twelfth grade remains high, proportionately much higher than white youth.

Are there realistic solutions for these multiple barriers preventing youth from becoming established in the full-time primary labor market? One solution might be an educational process that introduces young people to the labor market early and helps guide them into occupations of lasting attractiveness. There already exist such programs. One of these is cooperative education.

Goals of the Study

The major goal of this study is to determine whether graduates of cooperative vocational programs at the high school level are better able to become established in the labor market than graduates of other high school programs. Three programs serve as control groups: regular vocational, general academic and work study. There are two other research objectives. One is to determine whether cooperative education is more likely to prevent students from dropping out of school. The second is to identify the kinds of employers attracted to cooperative programs. The purpose here is to determine the market potential for secondary school coop students.

A number of straightforward objective measures are used to compare school programs. These measures represent such critical criteria of labor market success as the ease of finding the first regular job, the quality of that job and of later ones, and the ability to enter an occupationsl field that offers a satisfying long run future. Unlike members of the class of 1966, who received brief mail questionnaires, the members of the class of 1972 were interviewed at least once in person and two or three times more by phone. Extensive details were collected about their training, education, labor market behavior, work experiences, and future plans. Attitudes and expectations could be clarified, a luxury not possible by mail with the 1966 sample. As a result not only could the labor market success of the 1972 class be evaluated by a richer mix of objective measures than the 1966 class, but by various subjective ones as well.

Nevertheless, our criteria of success have important limitations. Objective measures of success are proxies for the extent to which the long run occupational interests and goals of the individual are met. Undoubtedly, individual definitions of success in earning a living share such common elements as adequate income, job security, interesting or self-fulfilling work, and status. However, the meaning of these factors and their importance to individuals will vary. In addition, the work itself cannot be separated from the employer and the workplace, and the personal relationship there. The inclusion of subjective considerations for the 1972 class does try to take into account some individual differences in preferences.

A definitive appraisal of the labor market success of a program also should cover an extended period - ideally a working lifetime. This study deals only with a six-year span for the class of 1966, and with an even briefer one for the class of 1972. Work histories and experiences of the 1972 class were collected for their last two years of school and for up to a year and a half afterwards. The assumption was that success or failure in the short run is a reliable indicator for the longer run. Major limitations of our evaluation criteria thus are the inability to recognize many interpersonal differences in preferences, and the short period of time covered.

The Potential Superiority of Cooperative Vocational Education

The ability of the graduates of a high school program to find satisfying and economically rewarding full-time work will depend in part on the inclusion in the program of elements associated with labor market success. These elements also should offset those factors responsible for high (and recently rising) unemployment rates and for some groups falling participation rates. Success also will be determined by the quality of the administration of the program. The critical components, as distinct from their quality, include the selection of students, occupational counseling, skill preparation, work experience, job placement, and job supervision and follow up.

The school must impart these attitudes and abilities, as well as enough occupational preparation to make the student a preferred hire to an employer with at least average employment standards and wage rates. More concretely, the selection process and occupational counseling have to produce a motivated individual with realistic expectations and knowledge of the labor market. The classroom and school shop have to give him enough skill and discipline for the employer to hire and retain him. Job placement has to help him locate a job while still a student and after graduation. Finally, job supervision and follow up have to help the student adapt to the work place and to his employer's expectations.

Probably any program that equips a student with a marketable skill in demand by employers and helps place him in a decent job is likely to provide the skills and attitudes for a solid start in the labor market. Cooperative education, however, goes a step further by integrating skill training in school with working experience in the same occupation. It also offers job supervision, job placement, and job development, which can give rise to lasting links with appropriate employers. As a result, cooperative education should have a decided edge over programs lacking occupational content, and a significant one over vocational programs lacking provisions for early work experiences and continuing contacts with employers in well-paying growth sectors of the economy.

The integration of skill instruction in school with related job experience should increase the student's desirability as a future employee, because the employer has had a chance to appraise the student on the job. From the student's viewpoint, his school and job experiences should acquaint him with the realities of the labor market, the nature of his trade, and the demands of the workplace. He should receive an understanding of work discipline. That is, he should learn what is expected of him with respect to work effort, obedience, punctuality and attendance. The student, before graduation, also should be able to test the occupation, perhaps in more than one shop, and to be in contact with experienced workers in the trade. Thus he should have the chance to pass through some of the trial and error phase of job hopping to find a suitable job, and at a time that he can receive the support and advice of teachers and counselors and without the constraints of family responsibilities. The student should be able to make his mistakes early and at a time when he can afford them.

There can be major disadvantages, too. These include premature vocational specialization (not only true of cooperative programs, however) and limitation to a single employer, so that the student does not have the chance to taste other lines of work or shops. In addition, counselors and job developers, by finding jobs for students may deprive them of the chance to learn how to job hunt.

The integration of formal schooling and institutional training with part-year or part-time employment thus may increase the likelihood that a youth will complete school and enter the labor market with the fundamentals of a skill and enough working experience to appreciate the demands of employers and the shop. Equally important, he may be assured a full time job before finishing school. Cooperative education also is a source of income to the student and his family, and thus may remove economic motives students have for dropping out of school. Finally, cooperative education is likely to impart a sense of accomplishment and maturation by allowing students to participate in the adult work world. At a minimum, the youth for whom the classroom is unbearable has a legitimate chance to avoid it at regular intervals.

School Programs Studied

Three non-cooperative school programs, namely, the voc ed, work study and general academic, served as control groups. All three were used as controls for the 1972 sample of seniors, while only voc ed and general academic were used for the 1966 class since work study programs were new to area high schools in 1966. No work study program had been operating long enough to have more than a handful of graduates at the time. For the 1966 graduates, another, but unintended, control group, namely college preparatory students was used because available school records did not distinguish between general academic students and college preparatory ones.

The study was designed to sample students attending different programs in the same schools, in order to minimize the differences in the socioeconomic status of the control groups. As discussed in more detail later, all the coop students in the center city of the metropolitan area attended district high schools offering general academic and college preparatory programs to students living in that district. The coop students, however, could come from throughout the city. A large majority of the coop students in our sample attended such schools. General academic students also were sampled from these same schools.

Coop programs were offered in most cases to students in the last three years of high school. Students usually began the program in the tenth grade, when half of the hours in the school year were spent in the school shop in a specific trade, while the other hours were equally divided between related and academic classes. Beginning in either the eleventh grade or the twelfth, the student ordinarily was placed in a job in his trade; the job replaced time in the school shop. The remaining half of the time in school continued to be spent in academic and related trade courses. The required academic courses were English, social studies, health education, and physical education. The related courses were related mathematics, related science, drafting and shop processes.

All the coop programs studied operated on an alternate week basis. The students spent one week in related instruction and academic work, and the next week in the school shop or on the coop job.[1] Although the school week was thirty hours long, students worked approximately forty hours a week when on coop, thus spending more time on the job than in school. Students had to be paid at least the state minimum wage, and had to be at least sixteen years of age to work.

Most of the students in the district schools were either in general academic or college preparatory programs. Students interested in a coop program applied directly for admission from their junior high schools. Acceptance by the program generally was based upon a student's academic qualifications and the number of openings in the program.

All the central city coop programs awarded students a certificate (not a diploma) after completion of the twelfth grade. In order to obtain a diploma, a student had to work in his trade or a related one "the major portion" of a year after completing high school. The year did not have to immediately follow graduation. The official explanation for this requirement was that it compensated for the school hours lost by a student when on his coop job during the eleventh and twelfth grades. The requirement also was designed to encourage students to remain in the trade. However, students entering military service after graduation received their diploma at that time. In practice, the one-year rule was not uniformly enforced to mean 12 consecutive months. Depending on conditions in the labor market, and the student's personal employment history, fairly distantly related trades were accepted as fulfilling this requirement. In addition, the related employment qualified for a diploma even when it came a number of years after completing high school.

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[1] If the student did not have a coop job, he spent the week in the school shop. Students in the eleventh or twelfth grade might not have a coop job for various reasons, e.g., a coop job could not be found for a student, or student athletics conflicted with work hours.

Regular vocational programs also provided training in specific trades. The major difference between these programs and the coop programs was that in the former, students were not placed on jobs during the school year. Instead they continued to attend shop classes during their junior and senior years in high school. In regular vocational schools, job development and placement were formally the responsibility of one or more guidance counselors assigned to graduating seniors.

The voc ed programs included in the study were of two types, regular trade and technical. The regular trade programs divided school hours in the same way as the coop vocational programs: half the time in school was spent in shop, a quarter in academic classes, and the remaining quarter in related instruction. Technical programs devoted only thirty percent of school time to shop, with approximately twenty percent of the time in related instruction and fifty percent in academic work. The academic courses taken by technical students tended to be more advanced than those taken by the trade students.

The general academic programs offered neither work experience nor training in a specific trade. They provided students with such basic skills as English, mathematics, and social studies. They also offered college preparatory courses, such as algebra or a foreign language needed for college admission. As noted, only the 1966 sample included college preparatory graduates.

In the initial determination of the study's sample programs, it had been anticipated that business or commercial courses could be designated as a form of vocational education. However, discussions with school administrators showed that most business programs for male students were in fact general academic programs. Male students who had not selected either a college preparatory or a vocational trade program were placed in the business program by default, because no general program was available. Graduates of a business program were therefore classified as general academic students in our study.

The 1966 college preparatory students posed a unique problem. The job market experiences of students who go on to college probably are not typical of those who do not continue their education. The initial plan was to discard questionnaires showing a college preparatory program. However, it became apparent that a large number of college preparatory students either had not gone on to college or had failed to complete it. It was decided to include these students in the study, as another control group, keeping them separate from the general academic graduates. Respondents who had graduated from college were excluded.

Program Differences and Their Implications

Variations in programs in the same category were substantial and had potentially important consequences for student interest and motivation, as well as for job development and placement. The most significant differences were among coop vocational and work study programs. Differences, although less severe, also existed among the voc ed regular trade programs included in the study. The coop programs differed in terms of location and accessibility to students living in different neighborhoods, the availability of different trades, program length, the mix of curricula in the same school, and the quality of counseling and job placement services. The work study programs differed in terms of program objectives, and the amount of supervision and direction given students, especially when working outside the school.

The cooperative vocational programs studied were given under two kinds of institutional arrangements. Under one arrangement, the program goes back to World War I, and was part of a large center city school system. The other coop programs, offered in two separate communities, were only one year old in 1972. They had been introduced as another option for seniors in 4-year vocational high schools.

In theory all the coop programs in the center city were open to students irrespective of neighborhood, but in practice, this was not so. A number of factors account for the uneven availability of the center city coop programs. First, only graduates of schools with terminal 9th grades could directly enter the neighborhood high schools and then coop programs in the 10th grade. Graduates of schools with terminal 8th grades could not; they first had to spend the 9th grade in a non-coop high school program and might even have to change schools to obtain the trade desired. On the other hand, these students could start the city's one standard 4-year trade school in the 9th grade, before having chosen a specific trade. Graduates of parochial elementary schools, all with terminal 8th grades, faced the same situation. Nearly all the city's public schools with terminal 8th grades had predominantly minority student bodies.

Second, in addition to their limited trade offerings, the center city's district schools were not equally accessible to all parts of the community. Two schools were in insular working class neighborhoods with distinct identities and were separated from the rest of the community by geography or by inconvenient public transportation. A third school was in a low income minority neighborhood. The three remaining neighborhood schools were more accessible to other sections by public transportation, although two of the three were in white working class districts with distinctive ethnic characteristics.

In contrast, the multi-trade schools with coop programs in the other two communities were accessible to all their residents irrespective of the location of their home or their prior school. Students could drive to school or come by school bus. In both cases the community's one academic high school was near its trade school. Barriers of ethnic insularity or physical isolation were not serious, at least regarding access to a secondary school.

Despite different institutional arrangements, all the coop programs at the time of the study had only male students. The coop students also tended to be isolated from other students. There were only vocational students in the two vocational schools with coop programs, while the coop students in the center city schools constituted small proportions of their respective student bodies. Most of the other pupils in the district schools were enrolled in general academic or college preparatory programs. The center city coop students had limited social and academic contacts with the other students, and considered themselves a separate, possibly disparaged, group.

A common concern of the administrators of all the coop programs was the quality of the on-the-job training received by their students. However, there were no uniform standards specifying the breadth and intensity of training. These accommodated to the work requirements of the employer, the ability and motivation of the student, and labor market conditions. Efforts were made to place more capable and reliable students with employers who had the widest variety of assignments and who were genuinely interested in instructing youngsters.

Just one trade, or at most two, were taught in each of the center city's district high schools. If a student wanted a trade other than the one or two given in his neighborhood high school, he either had to attend school in another neighborhood or the city's one regular vocational high school. In contrast, in the two other communities with coop trade programs, all the trades could be taken on a coop basis in the 12th grade. Coop students in these two schools had more trade alternatives and more opportunity to enter a preferred trade. Moreover, coop students in the vocational schools did not have to remain in their trade after graduation in order to obtain their diploma.

In summary, compared to the two new coop programs, the coop programs in the center city's neighborhood schools offered few trade alternatives, provided no junior or senior year shop curricula, were not as readily accessible to students from different schools and sections of the city. Also unless graduates entered military service, the center city program postponed granting a diploma until completion after graduation of the major portion of a year of employment in their trade or a related one.

The differences among the regular vocational school programs were one of duration and student origin. Two programs were in three-year, multi-trade high schools, open to their entire communities, and reached by school bus or public transportation. One was in a middle income manufacturing community with many machine shops and a large electronics industry. In practice the students came from a few junior high schools located in lower income blue collar sections. The other program was housed in an attractive recently built, well-equipped regional vocational-technical school located in the midst of a relatively high income suburb; it drew students mostly from lower income, industrial towns, in most cases lacking minority populations. The school offered both general academic and college preparatory courses, as well as a full range of trades, and it was able to select students with care because of its reputation and popularity. Its students had more options than those available to other voc ed students in the sample.

The third and last regular vocational education program was in a racially mixed, inner city school, with an all male student body, and as already noted, offered a full range of trade courses. Although a citywide rather than a district school, in recent years it had drawn larger proportions of its pupils from the immediate vicinity, reputedly because of racial tensions and street crime. A low income, predominantly black neighborhood, with a large, high-rise public housing project was within a few minutes walk of the school.

The technical program also was in a racially mixed school and was comparatively easy to reach by public transportation. The school was in a community with a large university population and a substantial manufacturing sector. Travel by public transportation to immediately adjacent communities, particularly the central city, was fast and convenient.

It is important to keep in mind that not all the school programs in existence in 1972 were in existence in 1966, when members of the mail sample had graduated. No work study programs either existed or were old enough to have had graduates. In addition, two schools that offered coop programs in 1972 had only regular vocational ones earlier. Point-in-time conclusions for the 1966 cohort need not apply to the 1972 cohort because of location and curricula differences, and because local labor market conditions before 1970 were unlike those afterwards.

The 1966 sample members graduated into a tightening labor market that continued to tighten for the next three to four years. The 1972 sample graduated into a looser labor market that remained loose for the remainder of the study. One might conjecture that in a tight labor market, employer willingness to relax hiring standards reduces interprogram differences in occupational success, as indicated by employment stability and wages. In short, the 1972 graduates should show sharper differences in their labor market experiences after graduation (holding all things equal, including age and time available to be in the full time labor market).

All trade programs, coop or not, drew students with different degrees of interest in a trade, as well as different degrees of aptitude for it. Some students applied either because they saw no utility in the general academic curriculum or disliked school work. To them, a trade program was the lesser of two evils, an escape from the formal classroom and a coop program was an escape from school itself, while providing an opportunity to earn money. The appeal of a program thus could be superficial and short run. However, regular vocational programs also drew students disproportionately from the immediate vicinity, or from lower schools in a few select low income, blue collar areas. Finally, there were students who had been disciplinary or learning problems in junior high school or middle school, for whom a trade program, coop or otherwise, was the prescribed cure.

Differences in student interest might not be important, except that trades differed markedly in popularity and ability to attract applicants. The most popular trades were electrical, carpentry, cabinetmaking, auto mechanics and sheet metal. At the other extreme, unpopular, with empty seats, were the machine shop and upholstery. Auto body occupied a middle position; it usually was the second choice of those preferring auto mechanics. But even popular trades could attract motivated, able students without any long run commitment to the occupation. The electrical and sheet metal shops probably were the two programs most likely to have the largest proportions of career motivated students. Auto mechanics, auto body and cabinet making were most likely to have the largest proportion of students learning the trade for extra income, to repair their own cars, or to make furniture at home.

Work study programs ranged from the well structured and supervised to those that were not much more than released time. All but one of these programs were offered in comprehensive high schools for students who either were on the verge of dropping out or being expelled. The programs were efforts, sometimes desperate ones, to keep in school youths, usually seniors who were about to fail, because of disinterest, learning difficulties, misbehavior, or all three.

This bleak arrangement was not the case with two programs. One was in a comprehensive high school in a high income, inner belt suburb; the other was a special school in the center city devoted entirely to work study. The first program was confined to distributive education. The program included juniors and seniors, but only the latter had to take the required distributive education course (8 hours a week) and worked, part-time (15 hours a week) in merchandizing. The second program accepted only students who had dropped out of regular school, had been expelled, or were on the verge of either, and whose academic performance had been poor, as shown by their being behind in their grade and reading levels. In practice, the program was administered with flexibility and with considerable care for the students. The program had a high ratio of staff to students and functioned year round. Teachers and counselors closely supervised the job phase, making weekly visits in order to maintain rapport with supervisors and to act as buffers between them and the students.

Chapter II

THE DESIGN OF THE STUDY

This chapter describes the methods used in the design and conduct of the research study. The topics covered are the selection of the sample of students and high schools; a description of the communities in which the high schools were located; a comparison of the age, race, mental ability test scores, and socio-economic backgrounds of the students in each of the four programs; an outline of the interviewing process for students, school administrators and officials, and coop employers; and finally, a comparison of the methodology utilized in the study of the class of 1972 graduates with that used for the class of 1966.

The Sample Selection Process

As stated in the previous chapter, the primary objective of this study was to determine whether students enrolled in a cooperative vocational program achieved a more successful transition into the labor market upon graduation than students in the three other types of high school programs that served as comparison groups for this study; i.e., the regular vocational programs, work study programs, and general academic programs. The transition process was defined not only in terms of the length of time required to obtain full-time employment after graduation, but also in terms of the types of jobs and wages that were obtained during an 18-month period after graduation. Interviews of students began during their senior year in high school in order to develop a rapport with them that would facilitate later follow-up efforts and to obtain important background information.

The original plan was to interview 300 students during their senior year and to follow them up to obtain knowledge of their post-graduation labor market experiences. The sample of 300 was to be evenly divided among the four types of program studies. In order to increase the likelihood that a minimum of 75 students in each of the four programs would be entering the full-time labor force upon graduation, 427 students were interviewed in school during their senior year. The distribution by program of students initially interviewed appears in Table 2-1.

Table 2-1: Distribution by High School Program of Students Initially Interviewed (N-427)

Program		Number	Percentage
Cooperative Vocational		127	29.7
Regular Vocational		99	23.2
Work Study		88	20.6
General Academic		113	26.5
	TOTAL	427	100.0

Coop students constituted the largest share of the sample because of the desire to include coop students of two inner suburban school systems that introduced coop programs after 1966. The small number of work study students was primarily due to the existence of only one large work study program in the area. As previously noted, the sample was limited to male students because there were no females in the cooperative vocational programs and very few in the regular vocational programs in the trade areas studied.

The 427 students in the sample attended eighteen different schools in nine communities in the metropolitan area. One of the objectives of the study was to include high schools in communities with different racial compositions, income levels, and socio-economic mixes. A special effort was made to include students from disadvantaged families since previous studies have shown that the labor market adjustment of young workers from such families, particularly of minorities, has been unusually difficult.[1] To ensure adequate inclusion of minority and disadvantaged youth, a relatively large proportion of the sample of students was drawn from the center city due to its above average incidence of poverty and its concentration of minorities, both Black and Spanish-speaking.

During the early fall of 1971, interviews were conducted with administrators of the school department of the central city, and of the state department of education to determine the number, types and locations of high school programs in the metropolitan area. Eighteen high schools in the central city and nearby suburbs were then selected for the project, and each had to meet three criteria to be selected. The school had to (1) offer either a coop vocational, regular vocational, or work study program;[2] (2) be located in a community with different socioeconomic classes, and (3) be in a community close to the central city. This last criterion was imposed so that students selected would reside in a similar geographic labor market, particularly with respect to in-school employment opportunities. All the communities, with the exception of the town with the regional vocational high school, fell within an eight mile radius of the central city and generally were accessible to each other by public transportation. Wherever possible, schools with more than one program were selected to give greater assurance of the socio-economic comparability of students in the different programs. The distributions of the 18 high schools by geographic location and types of programs are given in Table 2-2 and 2-3.

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[1] See The Twentieth Century Fund Task Force on Employment Problems of Black Youth, The Job Crisis for Black Youth, Praeger Publishers, New York, 1971.

[2] Whenever feasible, additional students from programs other than cooperative vocational were selected from the same high school to allow for more meaningful comparisons of program effectiveness. For example, all of the general academic students attended a high school offering at least one of the other types of programs.

Table 2-2: Distribution of Number of Students and High Schools Sampled by Location in the Metropolitan Area

Location	Number of High Schools	Number of Students	Percentage of Students
Central City	9	238	55.7
Inner Suburbs (Median Family Income Similar to Central City)	2	40	9.4
Other Suburbs	7	149	34.9
	18	427	100.0

Table 2-3: Distribution of Sampled High Schools and Students by Type of High School Program and Location

Program	Number of High Schools[a]	Number and Percentage of Students	
Cooperative Vocational			
Central City	6	106	83.5
Inner Suburbs	1	12	9.4
Other Suburbs	1	9	7.1
TOTAL	8	127	100.0%
Regular Vocational			
Central City	1	29	29.3
Inner Suburbs	2	28	28.3
Other Suburbs	3	42	42.4
TOTAL	6	99	100.0%
Work Study			
Central City	2	32	36.4
Other Suburbs	4	56	63.6
TOTAL	6	88	100.0%
General Academic			
Central City	7	71	62.8
Other Suburbs	4	42	37.2
TOTAL	11	113	100.0%

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[a] Since some high schools contained more than one program, the total number of schools exceed the 18 in the survey.

Half of the eighteen high schools accounting for over half the students (55.7%) were in the central city; two of the other schools, accounting for slightly under a tenth (9.4 percent) of the students were in two inner suburbs. The remaining seven schools, with about a third of the students (34.9 percent), were located in six other suburban communities. The share of central city students in the sample was very close to the central city's share of the population in the nine communities.

Most of the sample coop programs and students were in the central city. Somewhat similar results hold true for the general academic students. In contrast, most of the regular vocational programs and students, as well as the work study, were in schools outside of the central city.

The distribution by trade studied of the 226 coop and regular vocational students is contained in Table 2-4. Five trade areas accounted for approximately 90 percent of the students. Coop students were more heavily represented in the machine (28.3 percent) and sheet metal trades (15.0 percent) while the regular vocational students were over-represented in the electrical and electronics trades (33.3 percent) and in cabinet making (18.2 percent).

Table 2-4: Distribution by Trades Studied of Students in Cooperative and Vocational Education Programs (N-226)

Trade	All Students in Trade		Cooperative Students		Regular Vocational Students	
	No.	Percent	No.	Percent	No.	Percent
Auto Body or Auto Mechanic	39	17.3	20	15.7	19	19.2
Cabinetmaking	29	12.8	11	8.7	18	18.2
Carpentry	11	4.9	4	3.1	7	7.1
Electrical or Electronics	62	27.4	29	22.8	33	33.3
Machine	49	21.7	36	28.3	13	13.1
Metal Fabrication or Sheet Metal	23	10.2	19	15.0	4	4.0
Woodfinishing	6	2.7	6	4.7	0	0.0
All Other Trades	7	3.1	2	1.6	5	5.1
TOTAL	226	100.0	127	100.0	99	100.0

Socio-Economic Characteristics of the Communities

The high schools participating in the study were located in nine cities and towns in the metropolitan area. One of those high schools, however, was a regional vocational high school serving twelve different communities in the region. As a result, it is excluded from the following analysis on the characteristics of the communities.

The total population of the remaining eight communities in 1970 was 1,084,131, representing 39 percent of the population of the SMSA. The eight communities ranged in size from over 500,000 in the central city to 29,750 in one of the outlying suburban towns. The proportion of blacks in these eight communities was 10 percent, with a high of 16 percent in the central city and a low of 0.2 percent in one suburban town. Although the eight communities accounted for only 39 percent of the SMSA's population, they contained 90 percent of its black population. In addition, there were 21,600 Spanish-speaking persons living in the eight communities during 1970, accounting for 2.0 percent of their total population. The eight cities and towns combined were the home of a majority (60 percent) of the Spanish-speaking population in the SMSA.

The 1969 median family income in the eight communities ranged from a low of $9,133 in the central city to a high of $16,375 in an out-lying suburb. The median family income of the SMSA was $11,449. Five of the cities and towns had a median family income below that of the SMSA as a whole, and the remaining three were above it. Two of the first five communities had median family incomes that came within $300 of the SMSA median.

The incidence of poverty among families in the eight cities and towns also varied widely. In the central city, 11.7 percent of the families were poor, compared to 6.1 percent in the entire SMSA. Six of the eight cities and towns surveyed had poverty rates below that of the SMSA, ranging from 2.4 percent to 5.3 percent.[1]

The unemployment rate for the SMSA in March 1970 was estimated to be 3.5 percent. Unemployment rates in the eight communities varied from a low of 2.5 percent to a high of 4.4 percent. The central city had a 4.3 percent unemployment rate. The unemployment rate of four of the cities and towns was higher than the SMSA rate, while the rates of the other four were lower. As noted earlier, the unemployment rate of the SMSA began to rise sharply after 1970,and by 1973 it had reached 6.8 percent of the civilian labor force.[2]

The occupational composition of employed residents of the eight cities and towns differed widely. The proportion of professional, technical, and managerial workers living in these communities ranged from a high of 44.8 percent to a low of 16.0 percent, with four communities above and four below the 28.9 percent figure for the entire SMSA. The proportion of craftsmen, foremen, and operatives in each community also varied considerably, ranging from a high of 28.1 percent to a low of 6.8 percent. Again four communities had proportions above that of the SMSA, while four (including the central city) had proportions below it.

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[1] As might well be expected, the median family income levels and poverty rates for the eight communities were strongly correlated in a negative direction. The Spearman rank-order correlation had a value of -.952, significant at the .05 level.

[2] Commonwealth of Massachusetts, Division of Employment Security, Area Manpower Review, September 1974: Standard Metropolitan Statistical Area, Boston, Massachusetts, Boston, 1974, p. 7.

The labor force participation rates of males aged 16-17 were relatively high in these eight communities, ranging from a low of 44.1 percent to a high of 55.6 percent. The March 1970 labor force participation rate of 16-17 year old males in the entire SMSA was 45.5 percent, a figure well above the 35.7 percent figure for the U.S.[1]

Characteristics of the Students

As noted in the introductory chapter, this study is not based upon a true experimental design; i.e., the students upon whom the study is focused were not randomly assigned to the particular high school program in which they were enrolled. The students in the three types of non-coop programs thus have to be regarded as comparison groups rather than control groups. As a result, one cannot attribute gross differences between the labor force, employment, earnings, or educational experiences of coop and non-coop students solely to participation in their high school programs. Some portion of these gross differences may well be due to differences between the age, race, family background, and mental ability characteristics of the coop and non-coop students.[2] This section of the chapter will compare the distributions of the students in the four types of high school programs by selected demographic, family background, and I.Q. characteristics.[3]

The existence of any "self-selection" bias because of differences among students in their reasons for choosing high school programs or any "administrative selection" bias because of differences among programs in admission standards cannot be directly estimated in this report.

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[1] U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: U.S. Summary, "Table 216", pp. 688-690, U.S. Government Printing Office, Washington, D.C., February 1973.

[2] See: (i) Smith, Marshall S., "Equality of Educational Opportunity: The Basic Findings Reconsidered," in Equality of Educational Opportunity, (edited by Frederick Mosteller and Daniel P. Moynihan), Vintage Books, New York, 1972, pp. 230-342; (ii) Cain, Glen G. and Hollister, Robinson G., "Evaluating Manpower Programs for the Disadvantaged," Cost-Benefit Analysis of Manpower Policies, (edited by G. G. Somers, and W. D. Woods), Industrial Relations Centre, Queens University, Kingston, Ontario, 1969, pp. 119-151.

[3] Multiple regression techniques have been used in an attempt to isolate the independent contribution of participation in a coop program upon the labor force, employment, unemployment, and earnings, experiences of students during the high school and post-high school periods. The findings of this analysis are presented in Chapter Ten.

For example, it might be argued that coop students at the time of enrollment were likely to have been characterized by "different tastes" for work and formal schooling than students in the other three types of high school programs. If coop students primarily selected their program on the basis of its ability to more effectively serve their tastes for work during school, then the estimated independent impact of the coop program variable upon certain employment outcomes would be biased in an upward direction.[1] The study did not include efforts to measure students' "tastes" for work and/or schooling; thus, potential for error in the estimates of the independent contributions of high school program variables upon employment and schooling outcomes does exist.[2] It should be noted, however, that interviewers did probe for the reasons why students chose specific high school programs and for the criteria administrators employed in determining admissions into programs. The findings of these interviews are presented in Chapter III of this study.

The age distribution of the 427 students in the sample appears in Table 2-5. Nearly three-fourths were either 17 or 18 years old upon graduation, 21.5 percent were 19, and 6.4 percent were 20 or older. The coop and general academic students tended to be somewhat younger than students in the other two programs. Nearly 80 percent of the coop students and 77.8 percent of the general academic students were either 17 or 18 years old on graduation compared to 62.6 percent of the voc ed and 64.8 percent of the work study students. These differences in age distributions were statistically significant.

One might argue that the younger ages of the coops placed them at a disadvantage in the labor market immediately following graduation because of state labor laws prohibiting those under 18 from working on hazardous machinery, insurance companies' policies regarding their customers' hiring younger workers, minimum age requirements of apprenticeship programs, and employer preferences for older, presumably more stable employees. On the other hand, the age differences among programs was likely due in part to the practice of using certain vocational schools as "dumping grounds" for students with poor academic records. The apparent age disadvantage of the coop students would thus be a reflection of their higher promotion rates in school. One should not conclude, however, that coop programs were characterized by significantly different admissions standards as a result of deliberate administrative intent. It appeared that most coop programs did not or could not use highly selective admission standards. Those that did, however, contributed to the lower age profile of coop graduates.

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[1] For additional discussion of these issues, see: Stromsdorfer, Ernst and Fackler, James S., An Economic and Institutional Analysis of the Cooperative Vocational Education Program in Dayton, Ohio, Department of Economics, Indiana University, Bloomington, Indiana, March 1973.

[2] On the other hand, it can also be argued, as was done by several coop officials, that the instruction and counseling provided by the program is designed in part to increase youths' tastes for employment, particularly in the trade area for which they are being trained.

The distribution of students in the sample by race or ethnic group appears in Table 2-6. The vast majority (87.1 percent) of the students in the sample were white; only 10.8 percent were black, and 2.1 percent were Spanish-speaking. The racial and ethnic compositions of the participants in the four programs varied substantially, and the differences were statistically significant.

Table 2-5: Percentage Distribution of Students by Age upon Graduation and by Program (N=427)[a]

	High School Program				
Age at Graduation	Cooperative Vocational (N=127)	Regular Vocational (N=99)	Work Study (N=88)	General Academic (N=113)	Total (N=427)
17	36.2	24.2	21.6	38.9	31.1
18	43.3	38.4	43.2	38.9	41.0
19	18.1	25.3	28.4	16.8	21.5
20	1.6	8.1	6.8	5.3	5.2
21	0.8	4.0	0.0	0.0	1.2
Total	100.0	100.0	100.0	100.0	100.0

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[a] X^2 = 17.423, with 9 degrees of freedom; significance = .05
X^2 statistic was calculated after combining the 20 and 21 year old groups.

Table 2-6: Percentage Distribution of Students by Race or Ethnic Group and by Program (N=427)[b]

	High School Program				
Race or Ethnic Group	Cooperative Vocational (N=127)	Regular Vocational (N=99)	Work Study (N=88)	General Academic (N=113)	Total (N=427)
White, (excluding Spanish-speaking	97.6	77.8	87.5	83.2	87.1
Black	1.6	19.2	9.1	15.0	10.8
Spanish-speaking	0.8	3.0	3.4	1.8	2.1
	100.0	100.0	100.0	100.0	100.0

b X^2 = 19.641, with 3 degrees of freedom; significance = .001

X^2 value was calculated after combining the black and Spanish-speaking groups.

The major difference among programs in their racial compositions was the exceptionally low proportion of coop students who were black, even though a majority of the coops attended schools in the central city, which contained the bulk of the black population in the metropolitan area. This low representation of blacks was due in large part to the fact that five of the central city coop programs were housed in schools in predominantly white neighborhoods. Four of the five programs recruited students primarily from the immediate areas, thus attracting all-white student bodies. The fifth was an extremely popular electrical program that drew students from the entire city, but still could not overcome the racial barrier of neighborhood.

A sixth cooperative vocational program in the central city was in a neighborhood high school whose student body was more than half black, but the two cooperative programs in that school had relatively few blacks. Only two of the 32 coop seniors were black. The coop director of this school expressed the view that in-coming black students were persuaded to enter the college preparatory program and that even when they enrolled in the coop program they frequently transferred back to the academic prior to graduation. The exceedingly small representation of black students in the cooperative programs thus precludes any substantive policy conclusions about the relative effectiveness of such programs in preparing minority youth for work.

While only 10 percent of all the students were black, they represented almost 20 percent of the regular vocational students in the sample, and exactly 15 percent of the general academic. Most of the black regular vocational students were enrolled in the central city's vocational high school, which was located on the outskirts of a major black neighborhood.

The initial research plan was to obtain school data on class grades, I.Q. scores, and class rankings of the sampled students. Some school administrators, however, proved quite reluctant to provide this information, on the grounds that its release violated confidentiality regulations. The school department in the central city was unwilling initially to provide individual test scores and other data, but promised to release them for each sample of students, without matching individual names with scores. At the end of the 1971-72 school year, the department granted permission to staff to obtain the data from individual schools. This information was gathered from six of the eleven schools in the central city sample when the permission was withdrawn. As a result, information was available for only 264 of the students in the sample who were enrolled in 12 of the 18 schools surveyed. See Table 2-7.

Table 2-7: Student Test Scores on High School IQ Examinations in Twelve Schools by Program (N=264)

	High School Programs			
IQ Scores	Cooperative Vocational (N=74)	Regular Vocational (N=58)	Work Study (N=68)	General Academic (N=64)
Mean	93.2	94.3	91.2	97.9
Standard Deviation	10.5	13.2	13.7	15.6
Median	92.5	95.2	90.5	96.8

A problem frequently encountered in the presentation of IQ test scores compiled from different schools is that the schools use different IQ tests. Of the twelve schools providing such information, eleven used only one test although not necessarily the same test. The remaining school used four different tests. The Otis, Kuhlmann-Anderson, Lorge-Thorndike, and California Mental Maturity Tests accounted for thirteen of the fourteen tests used. Robert E. Herriott and Andrew I. Kohen have shown that pooling scores from different IQ tests is valid.[1] The data in Table 2-7 represent pooled test scores for students in each of the four programs.

General academic students achieved the highest mean score (97.9), while work study students had the lowest mean score (91.2). This difference was statistically significant at the .01 level. The difference in mean test scores between the general academic and coop students was statistically significant at the .05 level;[2] however, the higher mean score for the regular voc ed students compared to that of coops was not statistically significant. There is additional reason to suspect that the mean IQ score for the regular vocational group was somewhat biased upward, because test scores were not available for students from the central city vocational school, which school administrators felt was partly used as a "dumping ground" for problem students in academic programs. The inclusion of the IQ test scores of such students would likely have reduced the mean score for the regular vocational students.

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[1] Herriott, Robert E. and Kohen, Andrew I., "On the Pooling of Mental Ability Measures from Different Tests: A Pragmatic Approach." This paper was provided to the authors by Professor Herbert Parnes of the Department of Economics, Ohio State University.

[2] The "t" values for the two tests of differences in sample means were 2.64 and 2.14, respectively.

One cannot conclude that the coop vocational, regular vocational, and work study students came from statistically different student populations in terms of mental ability as measured by IQ scores. On the other hand, these three groups of students appear to come from a population that was statistically different than general academic students. The findings indicate that the existence of any favorable gross differences in the labor market experiences of coop students compared to those in the other three programs could not be attributed to the superior mental ability of the coops.

Data on father's educational attainment were obtained from 384 students in the sample. Somewhat more than one-half (52.7 percent) of the fathers had completed twelve or more years of schooling, and 6.8 percent were college graduates. The median education of the 384 fathers was 12.1 years. Their educational attainment was, however, below that of all males 35-64 living in the SMSA in 1970, (12.4 years). The difference was consistent with the relatively large representation of students in the sample from communities with median family incomes and proportions of residents holding upper-level white collar jobs below those for the SMSA as a whole.

The median educational attainment of fathers varied by program as follows: general academic (12.3), cooperative vocational (12.1), work study (11.9), and regular vocational (11.5). The differences in the distributions by program were statistically significant. Higher proportions of fathers of coop students (55.6 percent) and of general academic students (58.9 percent) had completed at least twelve years of schooling than fathers of regular vocational students (45.1 percent) and of work study students (49.4 percent). In addition, fathers of general academic students (13.7 percent were far more likely to have completed college than the fathers of coop and voc ed students.

More than two-thirds (67.1 percent) of the 401 mothers for whom educational attainment data were obtained were high school graduates, and 4.0 percent had completed four or more years of college. Mothers' median educational attainment was 12.3 years, a level approximately equal to that of all women 35-64 in the metropolitan area in 1970.[1] The students' mothers, however, were less likely to be college graduates than all women 35-64 in the SMSA, (4.0 percent versus 10.3 percent).

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[1] See U.S. Bureau of the Census, Detailed Characteristics: Massachusetts, PC(1)-D23, Appendix 10, U.S. Government Printing Office, Washington, D.C. 1972.

The median levels of educational attainment of the mothers of students in each of the four high school programs were quite similar, varying from 12.2 to 12.4 years. Still there were statistically significant differences in the distributions by program. The chief differences among the groups were the high proportion of mothers of the regular vocational students with only a primary school education (18.1 percent) and the low proportion of mothers of both the cooperative and regular vocational students with some education beyond high school (4.3 percent and 6.4 percent respectively).

Data were obtained on the occupations of 386 of the students' fathers. About one-fourth (25.4 percent) of the fathers were in white collar occupations; while a majority (52.1 percent) had worked as craftsmen or operatives (including transportation equipment operatives). Compared to all males 35-64 living in the metropolitan area, relatively few of the students' fathers held professional, technical, or managerial positions (13.2 percent vs. 35.2 percent) while relatively more were employed as craftsmen and foremen (35.8 percent vs. 20.1 percent), transportation equipment operatives (9.3 percent vs. 4.9 percent), and laborers (9.1 percent vs. 3.9 percent).[1]

The occupational distributions of the fathers of the students in the four programs were quite similar.[2] The fathers of coop students were somewhat less likely to be professional, technical, or managerial workers (5.0 percent vs. 13.2 percent for the entire sample) and more likely to be craftsmen, foremen, and kindred workers (42.9 percent vs. 35.8 percent for the entire sample).

Of the 415 mothers for whom occupational information was available, 220 or 53.0 percent were housewives. The remainder worked as clerical or sales workers (18.8 percent), operatives (10.8 percent), or in various service occupations (13.7 percent). The labor force participation rates of the students' mothers appeared to conform closely to the 1970 participation rates for all married women 35-64 in the metropolitan area.

The occupational distribution of the jobs usually held by the students' mothers differed sharply from that of all employed women between the ages of 35 and 64 in the metropolitan area. Only 7.7 percent of the students' mothers who were in the labor force held professional, technical, or managerial positions, while 40.1 percent were in clerical or sales jobs. Among all employed women 35-64 in the metropolitan area in 1970, the comparable shares were 20.4 percent in professional, technical, and managerial, and 46.5 percent in clerical and sales.[1] The occupations of the mothers of the students differed somewhat by program, but the differences were not large enough to be considered statistically significant.

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[1] Data on the occupational distribution of all employed males, aged 35-64, in the metropolitan area were derived from Ibid., "Table 174", pp. 843-44.

[2] The X^2 statistic was only significant at the .52 level.

At the time of the initial interview, the vast majority of the sampled students (80.3 percent) had been living in their current neighborhoods or towns for six or more years, and 63.7 percent had been living there for more than ten years. Only 14 of the students in the entire sample had lived within a different state or country in the previous five years. Differences by program were not statistically significant. Accordingly, knowledge of the local labor market held by the students and their families should not have been limited by short residency in their neighborhood or communities.

Another factor considered in examining the family backgrounds of the students was the presence in or absence from the home of the students' fathers. These data were regarded as potentially important in analyzing the work experiences of the students in light of the traditional importance of relatives and friends as sources of job information.[2] In addition, surveys of factors generating high unemployment rates among black youth have attributed part of the problem to the lack of information about jobs and the absence of role models in families with no male head present in the home.[3] Students coming from homes lacking a male head would be expected to experience more difficulties in making the transition from school to the labor market.

Only 65 (or 15.2 percent) of the students in the sample were living in a home in which the father was not present, due to either death, divorce, or abandonment of the family. During 1970, 13.3 percent of the families in the metropolitan area were headed by a woman.[4] Students in the general academic programs (20.3 percent) were the most likely to be living in a female-headed family, while students in regular vocational programs (10.1 percent) were the least likely. The observed differences among programs in the distributions of students by presence of a father in the home were, however, not statistically significant at the .10 level.

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[1] U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, "Table 174", p. 845.

[2] Kaufman, Jacob J., "Occupational Training Needs for Youth," The Journal of Human Resources, Vol. III, 1968, Supplement, pp. 121-140.

[3] The Twentieth Century Fund Task Force on Employment Problems of Black Youth, op.cit., pp. 49-50.

[4] U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, "Table 156", p. 714.

The Student Interviewing Process

At the outset of the project, a series of interviews with personnel from the school department of the central city school system and from the state department of education were arranged to determine the types and numbers of high school programs in the metropolitan area. On the basis of this information, the research staff selected the eighteen schools in the central city and surrounding suburbs as outlined above. The project staff visited each of the high schools selected in order to explain the purpose of the research study and to obtain the cooperation of the school administrators.

Permission to interview students in the high school typically was required from the superintendent of the local school system, and some delay was involved in getting such permission. All of the schools initially chosen for participation in the study eventually did cooperate with the project; however, the degree of cooperation varied from school to school. Lack of full cooperation increased the difficulty of conducting the study. A few of the major problems encountered during the initial interviewing process are described below.

Some of the major difficulties encountered in the initial interviewing stage were (1) the lack of adequate school facilities to conduct interviews, necessitating use of school cafeterias and libraries with other students present; (2) the insistence by the director of one work study program that he select (he claimed randomly) the students, all of whom proved exceptionally uncooperative; (3) the inability or unwillingness of some guidance counselors to identify non-college bound general academic students; (4) the insistence by one school principal, in the interests of confidentiality, that the prior consent of students be obtained before being interviewed, (leading to the exclusion of one of the three groups approached);and (5) high student absenteeism in a number of schools, especially during the winter, requiring additional school visits by the interviewing teams.

After a pre-test, the in-school interviewing of the students began in November 1971 and continued through April 1972. The early experiences with these interviews revealed no important problems in the students' interpretations of the questions. (See Appendix A for a copy of the interview form.) An outline of the four major topics covered during the interview is presented below:

1. Personal and socio-economic characteristics of the student
    a. Personal characteristics: age, place of birth, race or ethnic origin, marital status;
    b. Socio-economic characteristics: location of family's current residence, educational attainment of parents, occupational status of parents, number and age distribution of brothers and sisters.
2. School history of the student
    a. Junior high school attended, types of courses taken, counseling services received;
    b. Reasons for attending current high school, high school program enrolled in, factors influencing selection of high school programs;
    c. Counseling received while in high school, advantages and disadvantages of high school program, suggestions for improving high school program.
3. Employment experiences during high school years
    a. Number of jobs held during high school, how jobs were found, beginning and ending job titles, industry of employment, size of company, durations of jobs, beginning and final wages, average number of hours worked;
    b. Type and length of training received while employed, persons in firm providing training, relationship of training to high school courses;
    c. Role of school officials in developing or sponsoring jobs for students and in supervising work performance;
    d. Factors influencing student's selection of jobs, students' assessments of jobs held during high school, reasons for liking or disliking jobs, views of students regarding value of work experiences;
    e. Number of unemployment spells and their durations during high school, type of work sought while unemployed, numbers of job offers received and rejected while unemployed;
4. Post-high school employment and educational goals
    a. Full-time work plans,if any, upon graduation, including intended occupations, intended industry, source of information on jobs, reasons for accepting job offers;
    b. Plans for post-high school education, if any, including type of educational program;
    c. Plans for military service, if any;
    d. Future vocational goals, desired employment status in five years following graduation from high school.

The interviews usually were administered by a two-member team composed of a full-time member of the project staff and a part-time graduate student. The team approach had three advantages. The teams helped to reduce substantially the time required to complete an interview (from an hour or more to 45 minutes). Secondly, more complete answers were obtained by having one team member ask the questions, and the other record the responses. Further, early experiences with the team approach showed that maintaining eye contact with the students put them more at ease. It also was felt that the in-school team interviews would ensure more successful post-high school follow-up interviews since the students would be more willing to express their opinions over the phone to someone with whom they had developed a rapport. Of the 427 students initially interviewed, only 44 or 10.3 percent refused to cooperate during the post-graduation follow-up phase of the study.

The quality of some portions of the in-school interviews undoubtedly was reduced by the recall required of the students to answer certain questions. Some of the events which the student was asked to recall during the interview, such as guidance counselor visits during junior high or factors influencing the student's choice of high school program, had occurred as much as five years before. Work histories during high school dating back several years also took time to reconstruct; however, the vast majority of the students were able, somewhat surprisingly, to provide detailed accounts of their high school work experiences.

The Post-High School Interviewing Phase

A series of three follow-up interviews were conducted to gather information on the students' work experiences for 18 months following graduation. In practice some students were followed up for only seventeen months while others were followed up for a period of twenty-one months. The latter result was due to difficulties in locating individuals for their final interview.

The first round of follow-up interviews began during October 1972 and continued through March 1973. This initial post-high school interview was primarily designed to obtain information on changes in labor force status and employment experiences since the in-school interview. Information was collected on job titles, wages, hours of work, and unemployment experiences. The students also were asked about their enrollment in post-secondary educational institutions, entry into military service, and participation in union apprenticeship programs.

The follow-up interviews were conducted by telephone. Approximately one week before the phone call, a letter was sent to the home of each student to remind him of the purpose of the study and to encourage his continued cooperation. The initial telephone call normally was made during the daytime to verify whether the phone number provided by the student was still correct and, if the individual were not at home, to find out from parents or other residents, the best time to phone. If the student was home, he was interviewed at that time. Most of the interviews had to be conducted during the early evening hours; however, shift workers would be called or would return our calls during the morning or early afternoon and in a few cases after midnight.

Contacting students was more difficult than anticipated. The first set of problems arose because phones had been disconnected or changed to unlisted numbers, families had moved, or students no longer were living at home. If they had left home, their parents to a somwhat surprising extent either were unwilling or unable to provide their son's address or phone number. Second, even if students were still living at home, they were rarely there and their hours were unpredictable. Compounding the problem were, in some cases, obviously unfriendly relations among family members.

If the initial telephone call failed to produce a contact, a follow-up letter was mailed to the home asking the cooperation of the student either by providing us his new phone number or by calling the project office at his convenience. If the follow-up letter was returned undelivered, mailing lists of the U.S. Postal Service were used to see whether new addresses could be found. Phone calls also were made to the last known employer of the student to see if he were still employed there and if so to make arrangements for an interview.

If telephone efforts failed to produce an interview and if the letters requesting cooperation were not returned by the U.S. Postal Service, interviewers made home visits. Four persons were used for this purpose, including two assigned to follow-up minority students.

The second round of follow-up interviews began in late March of 1973 and continued through July of the same year. Not all of the students contacted for the first follow-up interview were re-interviewed during the second round. Omitted during the second round were about 80 participants who either had been contacted near the end of the first interviewing round or were attending college full-time or in the military. The second interview covered topics similar to the first post-high school interview, except for the addition of questions about unemployment insurance payments, job search behavior, and reservation wages for those who had experienced some unemployment.

During this second follow-up interview, participants were also asked whether they preferred the final interview to be conducted by telephone or in person. Since most of the participants (80 percent) preferred the telephone method, the final interviews were done in this manner. Nearly all of the earlier interviews by phone had been completed with few problems about interpretation of questions and responses, and it was difficult to see how home visits would improve the quality of the information obtained.

The final interviews were completed between the middle of October 1973 and the end of March 1974. Follow-up information on the post-high school employment experiences of students was thus available for a 17 to 21 month period for those successfully located and interviewed for a final interview. The last interview was used to update information on labor force status, work history, and educational and military service plans. In addition, the final interview gathered information about the participant's satisfaction with his current (or last) job,[1] his evaluation of his high school program in light of his post-high school employment and educational experiences, and his vocational plans for the next five years, including views on desired and expected earnings and occupational status.

The completion rates for the final interview classified by the program of the students are available in Table 2-8. Of the original sample of 427 students, final interviews were completed for 290 or 67.9 percent of the total. There were 33 more individuals with whom no final interview was conducted, but whose status was known. This group included 25 who were in military service, and 8 who were enrolled full-time in a college or university.[2] Thus, the follow-up was able to either complete a final interview or account for the current status of 323 or 75.6 percent of the original sample.

Coop students were the most successfully followed up. Approximately 84 either completed the entire interview sequence or were accounted for. On the other hand, work study students proved to be the most difficult to follow-up,

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1. The questionnaire contained an item on whether or not the student liked his current job. He was then asked to rate his satisfaction with that job in terms of one of the following categories: very satisfied, quite satisfied, somewhat satisfied, not very satisfied, or not at all satisfied.

2. Follow-up information was collected on 70 percent of those who entered the military.

TABLE 2-8: Distribution of Students by Whether Final Interview Completed and by Program (N=427)

	High School Program									
	Coop Vocational (N=127)		Regular Vocational (N=99)		Work Study (N=99)		General Academic (N=113)		Total	
	Absol.	Percent	Absol.	Percent	Absol.	Percent	Absol.	Percent	Absol.	Percent
Final interview completed	98	77.2	70	70.7	52	59.1	70	61.9	290	67.9
Final interview not completed, but students' status known	8	6.3	5	5.1	8	9.1	12	10.6	33	7.7
Total Reached	106	83.5	75	75.8	60	68.2	82	72.5	323	75.6
Uncooperative	9	7.1	13	13.1	8	9.1	14	12.4	44	10.3
Moved, no new address	10	7.9	8	8.1	16	18.2	12	10.6	46	10.8
Eliminated[a]	0	0.0	1	1.0	1	1.1	3	2.7	5	1.2
Did not graduate	2	1.6	2	2.0	3	3.4	2	1.8	9	2.1
Total Not Reached	21	16.5	24	24.2	28		31		104	24.4
Total Sample	127	100.0	99	100.0	88	100.0	113	100.0	427	100.0

[a] Because of death, hospitalization or imprisonment.

with only 68.2 percent fully interviewed or accounted for. The lower completion rate for work study students was not due to an above average lack of cooperation, but rather to a disproportionate number of families who had moved (18.2 percent for work study vs. 11.0 percent for the entire sample). In addition, relatively more of the work study students did not graduate from high school (3.4 percent vs. 2.1 percent for the entire sample).

The effect, if any, of these differential response rates upon the findings of the study with respect to interprogram differences in the post high school labor market and educational experiences of students cannot be readily determined. As noted below, a variety of efforts to contact students were made to maximize the aggregate response rate for direct comparison purposes. Given the fact that little hope remained for successfully completing interviews with the remaining non-respondents, no attempt was made to develop data for use in conducting statistical analyses of non-response bias.[1]

Refusal to cooperate was responsible for our inability to complete interviews with only 44 or 10.3 percent of the original sample of students. These cases fell into three different categories. The first group consisted of students who, when reached by phone, stated that they no longer desired to participate in the study. The second group consisted of students whose parents answered the phone and requested the staff not to call back. The third group was composed of students who would not return any of the calls to their homes or would refuse to come to the phone when at home. As many as ten phone contacts were attempted before this kind of student was classified as uncooperative.

Another 47 students (11.0 percent of the sample) could not be located for the entire sequence of follow-up interviews either because their families had moved without leaving a forwarding address or the student had left home and the parents refused to provide us with his new address or phone number. Various attempts were made by project staff to locate such families or individuals, including use of the U.S. Postal Service's mailing list service, the telephone company's new telephone listings, and discussions with program staff and classmates included in the sample.

Nine students did not graduate from high school in June of 1972 and had to be dropped from the study. Some had stayed in school for another six to nine months before graduating. The remainder had dropped out of school during their senior year. Finally, four students were excluded from the study because of death, long-term hospitalization, or imprisonment.

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[1] For a review of methods used in testing for non-response bias, see: Gujaruti, Damodar, "Use of Dummy Variables in Testing for Equality Between Sets of Coefficients in Linear Regressions: A Generalization," The American Statistician, December 1970, (ii) Stromsdorfer, Ernst W. and Fackler, James S., op.cit., pp. 17-37.

Interviews with High School Program Administrators and Staff

Interviews were held with program administrators and staff in each of the eighteen high schools included in the study. Among the persons interviewed were the headmasters or principals of schools; the directors or coordinators of regular vocational education, cooperative vocational education, and work study programs; the placement supervisors of these programs; high school guidance counselors; and shop teachers and classroom instructors. The program directors and coordinators were interviewed at least twice, normally before the in-school interviewing of students began and once more at the end of the 1971-72 academic year. In addition, one of the vocational schools adopted a cooperative vocational program in the 1972-73 academic year, and the director of the school and the administrative staff of the coop program were interviewed on two different occasions to determine the reasons for establishing the program, its organizational structure, and its success in obtaining the cooperation of employers and in placing students during its first year of operation.

Specific topics were covered in the interviews with the high school administrators and personnel; however, the interviews were largely unstructured in order to allow the program administrators and teachers to express their views freely. Several of the topics, including the recruitment and selection of students, were covered only in interviews with the directors, coordinators, and placement supervisors of the cooperative and regular vocational training programs. A brief outline of the topics discussed during the interviews is presented below.

1. Program objectives
    a. Statement of overall program goals
    b. Expected job readiness of students upon graduation from high school
2. Student selection (only asked of cooperative and regular vocational programs)
    a. Methods for recruiting students
    b. Criteria used in selection of students
    c. Extent to which entry criteria differed by type of trade
    d. Popularity of different trade programs

3. Personal characteristics of students (only asked of cooperative and regular vocational programs)
    a. Characteristics of current students
    b. Changes, if any, in the composition of vocational students during previous five years
4. Counseling of students during high school
    a. Objectives of counseling
    b. Staff responsible for counseling
    c. Frequency of counseling sessions
5. Job placement activities in cooperative programs
    a. Staff responsibilities for recruiting employers
    b. Responsibilities of employers to student workers
    c. Types of jobs developed for students
    d. Eligibility criteria for student participation in the employment component of the program
    e. School supervision of students on the job, and employer role in evaluating student work performance
6. Job placement activities in non-cooperative educational programs
    a. Part-time job placement services available to students during high school
    b. Job placement services available to graduating seniors
    c. Recruitment practices of program staff
    d. Formal follow-up of graduates from programs.

The 1966 Graduating Class

A follow-up study of the labor market experiences of graduates of the class of 1966 also was undertaken by project staff. An interim report, "A Case Study of Cooperative High School Education As a Transition from School to Work," was completed in September 1972, and the summary and conclusions of this report appear in Appendix B. A brief summary of the methodology and findings of this report is presented below.

The 1966 study obtained information on the post-high school work experiences of 320 graduates of the class of 1966 who had attended either a cooperative vocational program or one of the two other programs serving as comparison groups. One such comparison group consisted of regular vocational educational programs, and the other was general academic or college preparatory programs. The following types of information were obtained by mail questionnaires: the personal characteristics and socio-economic background of the student; his high school educational history; high school work experiences; post-high school education, apprenticeship, and military service, if any; post-high school employment experiences, including starting and final wages on first job and his current job, and the occupational titles on these jobs; and unemployment experiences during the five year period following graduation.

The questionnaires were mailed to the homes of 2072 graduates of the 1966 class of 14 of the 18 high schools selected for participation in the 1972 study.[1] The questionnaires were accompanied by both a brief letter outlining the purposes of the study and a self-addressed return envelope.

From the initial mailing, 224 questionnaires were returned; however, only 211 of them were usable. Another 539 of the questionnaires were returned by the U.S. Postal Service as undeliverable. Correct addresses were obtained for 80 of those 539, and the mailing to these new addresses produced another eight completed questionnaires, six of which were usable.

Two attempts were made to secure additional responses from those students whose questionnaires were not returned after the first mailing. The two additional attempts involved a second mailing of 100 questionnaires to the homes of students and telephone contacts with an additional 260 students. These two approaches succeeded in raising the total number of completed and usable questionnaires to 320.

The distribution of the 320 students by high school program was the following: Cooperative, 67 (21 percent); regular vocational and technical, 81 (25 percent); general academic, 62 (19 percent); college preparatory, 101 (32 percent); and distributive education, 9 (3 percent).[2]

The findings of the follow-up survey of the post-high school labor market experiences of these 320 students can be summarized in the following manner:

(1) Over the 1966-72 follow-up period, graduates of cooperative vocational programs appeared to have achieved a transition to the labor market as

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[1] The four remaining high schools not included in the 1966 follow-up study either were not in existence at that time or did not have their special programs in operation.

[2] The follow-up response rates by program were 24.5 percent for cooperative vocational, 21.0 percent for regular vocational, and 11.5 percent for general academic and college preparatory. It should be noted, however, that special efforts were made to follow up higher proportions of cooperative and regular vocational students in order to guarantee sufficient numbers in each category to allow comparisons of labor market experiences to be made.

well as, if not marginally better than, that achieved by the graduates of regular vocational programs. Approximately 90 percent of the students in both programs had been able to find their first full-time job within one month of graduation. While the mean initial wage for coop students ($2.05 per hour) was slightly below that for the regular voc ed students ($2.11 per hour), the mean final hourly wage earned by coop students on their most recent job was 21¢ higher than that earned by regular vocational students, $4.74 and $4.53 per hour, respectively.[1] When the mean final hourly wages of the two groups of students were compared by specific trade, coop students were found to be receiving higher hourly wages in four of the five cases.[2]

(2) The regular vocational students consisted of two distinct sub-groups, trade program and technical program participants, with different earnings experiences. The initial wage of coop students and regular trade students was approximately the same, $2.05 vs. $2.07, as was the final wage, $4.74 vs. $4.77. The difference between the mean final wages of coops and of technical students was statistically significant at the .05 level.

(3) The graduates of both the cooperative and regular trade school programs appeared to perform better in the labor market than graduates of general academic programs, and on some measures of labor market performance they fared better than graduates of college preparatory programs who did not go on to college.[3] While 90 percent of the coop and regular vocational students had found a full-time job within a month upon graduation, only 70 percent of the general academic and college preparatory students had been able to do so. Coop students and regular vocational students were earning mean final hourly wages $.99 and $.78 above those earned by general academic students.[4] The differences

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[1] The differences in both the mean initial wages on the first job and the mean final wages on the most recent (or last) job were, however, not significantly different at the .05 level.

[2] The five trades for which wage comparisons were possible were machinist, electrician, auto mechanic, woodworking, and sheet metal. Coops outperformed their regular voc ed counterparts in each of these trades with the exception of machinists.

[3] The coop students in the sample did report more months of unemployment than students in the other programs: 4.2 months for coop compared to 2.3 months for regular voc ed, 3.3 months for general academic, 3.9 months for college preparatory.

[4] The general academic students had achieved an initial hourly wage of $2.23, which was 18¢ above that earned by coop students. Coop students averaged a wage gain of $2.78 per hour over the follow-up period, while students in general academic programs achieved average wage gains of only $1.51.

in mean final wages were statistically significant at the 0.5 level.

These findings cannot be considered conclusive due to the low response rates to the mail questionnaire and the limited information on employment experiences and earnings available from a mail survey. It was hoped that the results of the longitudinal study of students of the 1972 class would be more valid in assessing the contribution of cooperative programs to the labor market transition of students after graduation.

Chapter III

THE HIGH SCHOOL PROGRAMS

This chapter reviews the policies adopted by the high schools to recruit and select students for vocational and work study programs, the reasons students chose particular programs and student assessment of them. Interviews with high school administrators and staff were the primary source of information about school recruitment and selection policies; interviews with students in their senior year were the primary source of information about the choice of particular programs and student opinions about them. Student suggestions for improving the programs in which they participated also were obtained.

Program Goals of Administrators and Staff[1]

Program administrators responded quite differently when questioned about program objectives. The director of a cooperative automechanics program felt that the purpose of the program was to acquaint students with the "working world" so that adjustment to the "world of work" would be smoother upon graduation.

The director of a cooperative machine shop program contended that the goal of the program was to train students for "profitable employment," and that the job readiness of a graduate depended upon the particular student's ability.

The director of a very popular, cooperative electrical program was more specific about his program's objectives. He asserted that a typical graduate from the course should be capable of becoming a "good" electrician's helper upon graduation. Students graduating from this program were awarded 3,000 hours, that is half the State Requirement, toward their electrician's license.[2]

The coordinator of a newly established cooperative vocational program in a suburban high school stated that the program was adopted for three primary reasons. First, exposure to a "regular world of work setting" would contribute to the maturity of the students. Secondly the employment experience would make students aware of their limited skill and take their shop and related instruction courses more seriously. Finally, the coop program would let the school know how well it was preparing the students for local industry.

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[1] A series of open-ended questions about the goals of the programs were asked of headmasters and principals of the high schools as well as the directors and staff of the vocational and work study programs.

[2] The headmaster of this school expressed concern about the program because students did not have enough academic courses to go on to higher education if they so desired. It appeared that even the "best" students in the program performed poorly on the GATB Test, which was part of the apprenticeship entrance exam.

The two vocational-technical schools in the sample offered courses that would enable the students to make the transition to college quite readily. One of the two offered both a college and non-college program; students who were performing well in the non-college course were encouraged to go on to college. The other, located in a suburban community, also offered an advanced technical program so that the school would not become stigmatized as a "dead end" for students. Students with stronger academic background were encouraged to enroll in technical courses during the ninth grade.[1]

The work study directors were in general agreement over the primary objectives of their programs but differed both about ways to achieve these goals and the ability of their programs to accomplish them. The major work study objective was keeping potential dropouts in school. The programs were geared to students who had been performing poorly in the classroom and who were "alienated" from the academic environment. In addition, one of the schools had initiated the work study program to provide alternatives to disadvantaged students, particularly those from welfare families in the town's low income neighborhoods.

The structure of the work study programs varied substantially. One school in a high income suburban community used the program to provide work experience to students taking various industrial arts courses.[2] The director of the program felt that the work experiences should expose students to a variety of job areas rather than one specific job.

Another school directed its work study program toward economically disadvantaged students who were dropping out of the general academic program. The program was designed to enable these students to earn money, acquire basic work skills in an actual job situation, and to select an occupational goal.

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[1] Schaefer, Carl J. and Kaufman, Jacob J., New Directions for Vocational Education, D.C. Heath and Company, Lexington, 1971, p. 13, have argued that the popularity of vocational education program is diminished by student perceptions that the limited academic content could adversely affect future educational opportunities.

[2] The courses simply provided a few hours of shop work per week and were not classified as vocational education programs by the State Department of Education.

A third work study program, located in a suburban community bordering on the central city, had been designed for students enrolled in either the general academic or industrial arts program. The program director maintained that work study should provide students the opportunity "to explore" different types of jobs while in high school. He, therefore, did not discourage job shifting by the students.

The primary objective of work study programs in the central city was not only to encourage "potential dropouts" to remain in school but to provide an educational setting that would attract dropouts to return. This particular program had been established in April 1966 with federal funding under Title I of the Elementary and Secondary Education Act. Teachers were selected by the school's administrative staff and were screened carefully for their ability and willingness to work with young people. The teachers were expected to visit the homes of the students once a month and to discuss their school and job performance with their parents.

Recommendations for Change by Program Directors[1]

A number of the directors of vocational education programs wanted an expansion of "exploratory" trade courses for ninth and tenth grade students. These directors believed that an expansion would reduce drop-out rates from the vocational education programs since students would be selecting trades they enjoyed the most.

The recent implementation of the coop program in one of the suburban vocational high schools allowed that school to expose ninth grade junior high school students to vocational courses because the shops now had excess capacity in as much as half the students were in school at a given time. The others were working instead of taking shop. The junior high school students could enroll in a shop course for four to six weeks. The high school director felt that such mini-courses would contribute to better informed course choices when students entered high school and to a greater satisfaction with the program.

The directors of the vocational education and work study programs also favored additional occupational areas for training purposes. The director of one technical school argued for including plumbing. The headmaster of an inner city academic high school recommended closer ties between the school and nearby health institutions for training medical and dental technicians.

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[1] Program directors were asked a series of openended questions regarding their views of desirable changes in their programs.

He also desired contacts with the mental health center of a local university to provide training for mental health aides.

The third major category of recommended changes dealt with the "fifth year requirement" of the cooperative vocational education programs in the central city. Students who completed their senior year programs were awarded their diploma a year later and only if they had worked a year in the trade for which trained. However, program directors had leeway in interpreting what "a year in the trade" meant. Moreover, military service was an officially approved substitute. There was no deadline. Diplomas were awarded years after finishing the twelfth grade.

The directors of these cooperative programs were divided over eliminating the fifth year requirement. Schools offering popular trades, such as electrical, auto mechanics, and cabinetmaking, favored maintaining the requirement, while schools offering unpopular courses, particularly machine shop, wanted to drop it.

The coop directors in favor of keeping the fifth year requirement argued it allowed them to supervise the student during the year following graduation, encouraged a student to seek employment in the trade, and discouraged students from transferring into the coop program simply as an "easy way" to get a diploma. The requirement, in their view, succeeded in attracting students with at least some interest in a specific trade.

The coop administrators in favor of eliminating the requirement insisted that "the boys deserve their diploma after three years in the shop" just as did any student who had completed his or her senior year, irrespective of their labor market status. Moreover, students could not be held responsible for unfavorable labor market conditions. In one recent year only 25 to 30 percent of the students completing the senior year of the machine shop program received their diploma in the following year, a sharp decline from previous years, because of a reduction in job openings in the local economy for machine operators and machinists. However, one offical added that "some boys are simply not interested enough to really go looking for the available openings in the trade." According to another coop coordinator, the fifth year requirement held down coop enrollments in his school because students were "scared off" by the additional one-year requirement.

However, this requirement probably deterred enrollments only if the trade were unpopular because of few job openings or other factors. For example, the decline in machine shop enrollees could be attributed to the perception of poor employment prospects, relatively low wages compared to other skilled trades, particularly those in construction, and to dislike for the kind of work (confining, meticulous, and tedious if assigned routine tasks too often). Unfortunately it was not feasible to collect data for sufficient years to test whether the 5th year requirement led to a significant difference in diplomas awarded coops compared to students in other curricula. Certainly the non-coop student faced one less hurdle.

Recruitment Policies and Techniques

The administrators of the vocational education and work study programs used a variety of recruitment techniques to attract students. Some of the program directors and coocrdinators had substantial latitude in recruitment, while others claimed that their school department placed tight limits on the methods they could utilize and geographic areas from which they could recruit students. Generally, schools in the central city were more restricted in their recruitment practices than other high schools.

Within the central city itself, recruitment practices varied from one high school to another. The headmaster of the high school with the electrical coop program distributed application forms to all of the city's junior high schools. This program was very popular with students throughout the city; total applications during the past ten years averaged over 3 times the number of openings. Students in the program commuted from practically every neighborhood of the city rather than the immediate neighborhood of the school as was true of other coop programs. The coordinator of a cooperative program in the auto trades revealed that he simply recruited from junior high schools in the neighborhoods surrounding the school, since all available slots were readily filled.

The coordinator of the coop program in the cabinetmaking, woodfinishing, and upholstery trades stated that for the previous few years he had been permitted by the school department to visit only the junior high schools that "fed" students to the general high school which had used his coop program.[1] While visiting these schools, he would distribute application forms to the students in the ninth grade. The coordinator also attempted "to sell" his programs, particularly woodfinishing and upholstery, to the guidance counselors in the feeder schools.

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[1] The coordinator also mailed application forms to other junior high schools in the city, but he as not allowed to actively recruit in those schools.

The coordinators of the coop programs in the machine trades had difficulty attracting enough students to fill all available slots. One had been visiting nearly every junior high school in the central city as well as those in surrounding suburbs. In his view, junior high school students were not being encouraged to enter the coop program by guidance counselors, junior high school teachers, or their parents. The coodinator of the other coop machine course limited his recruitment to junior high schools in the neighborhoods immediately surrounding the school. He expressed the need to improve relationships with guidance counselors from the feeder schools, claiming that counselors too frequently referred students whom they believed "too dumb" for a college preparatory program and therefore in need of some vocational training before leaving high school.[1] However, for reasons already suggested, the unfilled openings in the coop machine trades program might have reflected unfavorable economic factors and attitudes about the work itself.

In the central city trade school, recruitment was done by shop teachers and guidance counselors who would visit junior high and middle schools throughout the city and show films to the students and discuss the trade school's programs with them. There was a waiting list for admission to the ninth grade openings in grades ten to twelve due to dropouts from the program.

The vocational and technical programs in the suburban high schools generally recruited students from all the junior high schools in the community, including in some cases parochial schools. The director of one school in the study did admit, however, that most students came from junior high schools in a blue-collar neighborhood.[2] The teachers and counselors in this junior high school were reportedly "more sympathetic" to vocational programs.

The regional vocational high school assigned counselors to visit every junior high school, including parochial schools, in the region.

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[1] According to this coordinator, only one junior high school guidance counselor has ever paid a visit to the school's shop facilities even though the coordinator had personally extended an invitation to many others.

[2] The director also cited the school's difficulty in attracting black students into the programs. The black students were encouraged to enroll in the college preparatory program so that they could take advantage of special college programs available to them upon graduation.

Special efforts were made to arouse the interest of guidance counselors in the local schools. The principal of this high school asserted that the school primarily recruited "C" or "C-minus" students from blue-collar, working-class families. Parental pressure was a key element in influencing the student's choice of high school and parents from blue collar backgrounds would support their child's decision to attend a vocational high school.

The suburban high school administering various occupational education programs, including distributive education and food service, relied upon the teacher-coordinators of its programs to visit eighth grade students in the community during the spring. The director of the overall program was attempting to recruit students from junior high schools other than those in low income neighborhoods.

The work study high school located in the central city received most of its applicants by word-of-mouth, i.e., from recommendations of friends or relatives of students attending the school. Other applicants were referred by judges, probation officers, and personnel of social service agencies familiar with the program. The school did not rely heavily upon referrals from counselors or teachers in the regular school system because the school did not want to be used as a "dumping ground" for students with severe disciplinary problems.

School Policies on Student Selection

The vocational education programs of different schools did not have common admission policies. However, one practice was shared. Where there was an excess of applicants for a particular program or course, schools recruited the more qualified and motivated students. This occurred even in certain central city programs, although admission tests were prohibited and admission was supposed to be on a "first come, first serve" basis. In contrast, in all but the central city, work study programs had no entry requirements other than enrollment in the school for at least a year and an age of 16 and above. In the central city, entry criteria were designed to obtain those who might otherwise not remain in school because of learning difficulties but who were sufficiently motivated to check out the school's unique program.

In the high school administering the popular electrical coop program, the headmaster governed the selection process. A student's junior high school grades and attendance were considered. A "C" was the lowest grade allowed for admission. Students with truancy problems generally were not accepted. A recommendation also had to be submitted by the student's junior high school guidance counselor.

The coordinator of one of the coop auto mechanics courses in the central city claimed that admission was on a "first come, first serve" basis. He would have preferred to "pick" the students from the program's waiting list. Limited openings in popular trades as well as state educational requirements on the number of course hours in trade classes restricted the ability of students to explore different trades and to transfer to more suitable ones.

The coop program in the cabinetmaking, woodfinishing, and upholstery trades took into account both grades and attendance records when selecting students. Applicants were expected to have grade of "B" or better in shop, math, or drawing. A grade of "C" served as the cutoff point. The coordinator of the program claimed that he would have preferred to give incoming students a mechnical aptitude test, but the school department would not allow one. The popularity of the specific trades offered by this program varied widely.

The only criteria used by the central city trade school were that the students must be at least 14 years of age and have completed the eighth grade successfully. During the ninth grade, all students entered an "exploratory" program during which they spent one marking period in each of five different shop areas (electrical, machine, printing, sheet metal, and wookworking). At the end of the first year, students chose the trade in which they wished to specialize for the remaining three years.

The regional vocational high school had a twenty-point ranking system, which incorporated the previous year's grades and attendance record. The applicant's score on a differential aptitude test contributed one-half of the composite score. Since the school assigned quotas to each city and town in the regional school system, a separate list of scores was maintained for each.

The work study programs generally operated under open admission policies. Any student in the schools who had reached a specified grade was eligible. In one of the suburban schools, both juniors and seniors participated in the program, and attended the same classes as the rest of the student body. The work study program was open to all students sixteen years of age or older in the high school in the outer suburbs. In the suburban high school offering occupational training courses outside of the blue collar trades, students were accepted on a "first come, first serve " basis.

In the central city the work study high school admitted male students to the ninth grade but females not before the tenth because of the difficulty placing girls younger than sixteen in private companies. To be admitted into the program, a boy had to be 15½ years old and have completed the eighth grade. Students seeking admission had to come to the school with their parents for an interview with school personnel who explained the school's program, goals, and rules. The student had to affirm the program offered, what he desired and a willingness to abide by the rules. Only then could the student formally apply and have his name placed on the waiting list. A one-year wait was not unusual. The purpose of the interview was to test the student's sincerity and motivation.

The Schools' Views of the Students' Quality

Administrators and staff of the vocational education and work study programs were asked to compare the academic preparation and motivation of their current students with that of students five years earlier. The majority of the interviewed, particularly the vocational education directors and coordinators, maintained that their current students had inferior academic backgrounds, were less motivated, and were more likely to come from economically disadvantaged families compared to students five years earlier.[1]

There were some exceptions, but they were few. The coordinator of the electrical coop program believed that there had not been a change in recent years. He expressed the view that the "motivation of students is excellent. If you can keep money in their pockets, they will be happy." He did acknowledge, however, that the electrical program probably attracted the "best" of those applying for vocational education. The only major change perceived by the coordinator of the auto mechanics coop program was that students appeared to be drawn from neighborhoods other than the one in which the high school was located.

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[1] Complaints about the declining quality of trade school graduates apparently are not a new development. In a survey of twenty-two companies in the New England area producing tools, dies, and electrical or electronic equipment, Horowitz and Herrnstadt discovered that half of the firms believed that the overall quality of students graduating from machine shop programs in high school had been declining since World War II. Morris A. Horowitz and Irwin L. Herrnstadt, The Training of Tool and Die Makers, Northeastern University, Boston, 1969, pp. 319-324.

The staff of other programs drew a bleaker picture. The coordinator of the coop program in cabinetmaking, woodfinishing, and upholstery trades felt that students seemed less willing to travel across the city to enroll in his programs. Nonetheless, although over half of the high school's student body was black, only ten percent of the coop students were. Of the thirty-six seniors in the coop programs at the time of this study, only two were black.

The two coop machine trades courses also appeared to be attracting students with personal characteristics and family backgrounds different from those of earlier students. According to one of the coordinators, his students were coming increasingly from broken families; he estimated that one-third of the current students' families received public assistance under the AFDC program. The coordinator of the other machine trades program complained that the program was being utilized as a "dumping ground" by junior high schools.[1] The academic performance and interest of current students were believed to be below the levels of students in the previous five to ten years.

The complaints about the declining caliber of vocational education students were not confined to schools in the central city. The senior counselor in the suburban technical high school commented about the "poorer quality" of the school's students. Among the deficiencies were lower levels of reading skill, language problems of students from immigrant families, and a higher proportion of students from broken families. The director of the vocational-technical high school thought that students today were not as dedicated to work as they were five years ago.

The students in the work study high school located in the central city were recognized as being less academically competent than students in other high schools. However, the objective of this school was to enroll just such students.

The practice of referring to vocational programs students who are doing poorly in academic courses or posing discipline problems in the classroom needs careful scrutiny by high school administrators. Guidance counselors should be acquainted with the content of vocational education courses and the skill requirements of trades for which school training is provided. There is an untested notion that a student who cannot perform well in the classroom "must be good with his hands" and thus suited for vocational training or that the vocational courses can be successfully mastered by the less gifted or disciplined. Vocational education cannot be expected to resolve all the academic and disciplinary problems of students.[1] Continuation of the practice of "dumping" will further tarnish the image of vocational education. Attempts to place in a trade poorly prepared and poorly motivated graduates will only convince employers that vocational education programs are unreliable as a source of quality labor.[2]

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[1] The practice of referring vocational education programs to students who are either performing poorly in the academic programs or causing disciplinary problems in the classroom has been reported by a number of reviews of the vocational education system. See Panel on Youth of the President's Science Advisory Committee, Youth: Transition to Adulthood, University of Chicago Press, Chicago, 1974, p. 85; and U.S. Department of Labor, Manpower Report of the President: 1965, U.S. Government Printing Office, Washington, D.C., 1965, p. 104.

Pre-High School Education of Students

As shown in Table 3-1, most of the students attended junior high or grammar school in either a public (78.8 percent) or a parochial school (16.2 percent) in the same city or town as their high school.

Approximately 77 percent of the students for whom responses were available had taken an industrial arts course while in junior high. There were no statistically significant differences by high school program. Only slightly higher proportions of general academic students (76.8 percent) and work study students (80.5 percent) had such courses compared to either the coop (74.4 percent) or regular vocational (78.6 percent) students. A number of high school vocational administrators and teachers claimed that much of the equipment in industrial arts shops was outdated and that the courses simply "turned off" students from enrolling in any high school trade program.

Student assessments of the assistance provided by the junior high school counselors were not favorable. Only 39.2 percent of the 143 students responding had a favorable opinion; in contrast, 44.1 percent had a negative opinion and 16.8 percent a mixed one; (the assessment indicated some good and bad points). These responses left the impression that junior high school guidance counselors had a minor influence on student choices of high school program and on their vocational plans. Less than one-third of these students (31.8 percent)

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[1] See, Marcia K. Freedman, "The Role of Training in Meeting the Needs of Unemployed Youth," Manpower Policies for Youth, Eli E. Cohen and Louise Kapp, eds., Columbia University Press, New York, 1966, pp. 42-43.

[2] Horowitz and Herrnstadt have argued that the reputation of a machine shop program in the eyes of employers was dependent upon the sophistication of the training provided to students and the familiarity of school personnel with the employment needs of the firms. Horowitz and Herrnstadt, op. cit., p. 32.

TABLE 3-1: Type and Location of Junior High or Grammar School Attended by Students, by High School Program Category (N=427)

Type and Location of Junior High or Grammar School	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Public School in same city or town	95 (74.8%)	78 (78.8%)	70 (79.5%)	87 (77.0%)	330 (77.3%)
Parochial or other private school in same city or town	28 (22.0%)	16 (16.2%)	11 (12.5%)	14 (12.4%)	69 (16.2%)
Public school not in same city or town	2 (1.6%)	4 (4.0%)	6 (6.8%)	5 (4.4%)	17 (4.0%)
Parochial or other private school not in same city or town	1 (.8%)	0 (0%)	1 (1.1%)	1 (.9%)	3 (.7%)
Other	1 (.8%)	1 (1.0%)	0 (0%)	6 (5.3%)	8 (1.9%)
TOTAL	127	99	88	113	427

had ever discussed the selection of high school program with a counselor and only 14.1 percent had received counseling about their vocational plans.

Students' Selection of School and Program

Table 3-2 presents the reasons students gave for enrolling in the high school which they attended as seniors. The three reasons cited most frequently were to enroll in a specific program offered by the high school (39.2 percent); the characteristics of the school, including its location and racial composition (28.0 percent); and the lack of an alternative, i.e., only one high school in the city or town (21.3 percent).

There were sharp differences among programs. More than sixty percent of the students in vocational programs selected their high school to enroll in a specific trade course or program, in comparison to only six percent of the general academic students and fourteen percent of the work study. General academic students were more likely to choose a high school either for its characteristics (46.3 percent) or for lack of alternatives (32.4 percent). The differences in the distribution of responses were significant at the .001 level. The results appear to indicate that the students in vocational programs were much more likely to choose a high school for its specific course offerings than either the general academic and work study students.

During the in-school interviews, students were asked whether and why they had considered attending other high schools. Of the 379 students answering this question, 44.3 percent had thought of at least one other high school. Students in coop vocational and general academic programs were more likely to have done so than students in regular voactional and work study programs. The reason was the lack of another school offering regular vocational and work study programs in the suburban cities or towns. Students enrolled in cooperative vocational programs in the central city had a number of high schools offering such programs from which to choose. Given the high proportion of coop students in the central city, it is not surprising that a higher proportion of them considered attending other schools. The differences in the distribution of responses by program were significant at the .01 level. See Table 3-3.

The primary reason students did not attend the other high schools they had considered was because their current high school was their first choice. Only 23 percent of the students responding did not enroll in the alternative

TABLE 3-2: Reasons Given by Students for Selecting Their Current High School by High School Program, Multiple Response Included[a]

(N=418)

Reason for Selecting High School	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
To enroll in specific program offered by school	79 (63.2%)	65 (66.3%)	13 (14.9%)	7 (6.5%)	164 (39.2%)
Advice of friends parents, other relatives	22 (17.6%)	17 (17.3%)	21 (24.1%)	20 (18.5%)	80 (19.1%)
School characteristics (including location, racial composition)	35 (28.0%)	14 (14.3%)	18 (20.7%)	50 (46.3%)	117 (28.0%)
Disliked other high school options	15 (12.0%)	34 (34.7%)	15 (17.2%)	14 (13.0%)	78 (18.7%)
Only high school in town/community Only high school could get into	4 (5.6%)	8 (8.2%)	42 (48.3%)	35 (32.4%)	89 (21.3%)
Other reasons	7 (5.6%)	2 (2.0%)	14 (16.1%)	17 (15.7%)	40 (9.6%)
TOTAL REASONS	162	140	123	143	568
Number of students giving at least one response	125	98	87	108	418

[a] NOTE: The percentages are the proportion of students in a program giving a particular response and not the proportion only one response is of all responses given by students in a program.

(1) $X^2 = 185.956$
(2) Degrees of Freedom = 15
(3) Significance - .001

TABLE 3-3: Whether Students Considered Attending High Schools Other Than The One in Which Enrolled as a Senior by High School (N=379)

Whether Student Considered Attending Another High School	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Yes	61 (50.0%)	26 (30.2%)	30 (39.0%)	51 (54.3%)	168 (44.3%)
No	61 (50.0%)	60 (69.8%)	47 (61.0%)	43 (45.7%)	211 (55.7%)
TOTAL	122 (100.0%)	86 (100.0%)	77 (100.0%)	94 (100.0%)	379 (100.0%)

(1) $X^2 = 11.842$
(2) Degrees of Freedom = 3
(3) Significance = .01

TABLE 3-4: Reasons for not Attending Other High Schools Considered, by High School Program, Multiple Responses Allowed[a] (N=153)

Reason for Not Attending	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Current High School was first choice	26 (51.0%)	14 (48.3%)	12 (40.0%)	22 (51.1%)	74 (48.4%)
Not Accepted by Other High School	7 (13.7%)	6 (20.7%)	5 (16.7%)	17 (39.5%)	35 (22.9%)
Characteristics of other School including location, racial composition	17 (33.3%)	2 (6.9%)	2 (6.7%)	10 (23.3%)	31 (20.3%)
All Other Reasons	10 (19.6%)	7 (24.1%)	16 (53.3%)	12 (27.9%)	45 (29.4%)
TOTAL REASONS	60	29	35	61	185
Total Number of Students Giving at least One Response	51	29	30	43	153

(1) $X^2 = 21.031$

(2) Degrees of Freedom = 9

(3) Significance = .02*

[a] NOTE: The percentages are the proportion of students in a program giving a paricular response and not the proportion any one response is of all responses given by students in a program.

high school because they were not accepted. Another 20 percent declined the alternative school because of its unfavorable location or racial composition. General academic students (39.5 percent) were more likely to have been rejected for admission by other schools, including the more prestigious technical and college preparatory schools in the central city. On the other hand, coop students (33.3 percent) were more likely to have turned down other schools due to an unwillingness to commute to other neighborhoods or to the central city's trade school, whose student body was becoming predominately minority in composition. The differences in the distributions of responses were significant at the .02 level. See Table 3-4.

Few, just 46 (or 10.3 percent), of the 418 students responding had attended a high school other than the one in which they were enrolled as seniors. Coop vocational students (3.9 percent) were least likely to have attended another high school, although approximately one-sixth of the general academic students had come from academic programs in other high schools. Practically all of the work study students who had attended another school were currently in the central city's work study high school. These students had dropped out of school and returned to take advantage of the work study program. The differences in the distribution of responses were significant at the .03 level.

The most frequently mentioned reasons students in the vocational programs, both cooperative and regular, had for selecting their particular trade were previous interest in it, the desire to learn a practical skill, and the advice of parents and relatives, in that order respectively.[1] The first two reasons combined predominated, but more so for the regular vocational students than the coops for whom interest in their particular trade was less important. Instead the coops were more likely to have wanted a practical skill or have taken the advice of relatives, friends and others. Only a very small proportion of the coop students (5.1 percent) claimed that they had selected a coop trade because of the opportunity to work while attending school. See Table 3-5.

In contrast, working was the chief motive of the work study students Well over half (57.7 percent) chose the program to obtain an opportunity to work while enrolled in school. The most common reason cited by students for

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[1] During their senior year, the students were asked their reasons for selecting the trade (if a vocational program) or school program (if non-vocational) in which they were then enrolled.

TABLE 3-5: Reasons Students Gave for Choosing Their High School Program or Trade, by High School Program, Multiple Responses Allowed.^{a} (N=409)

Reason for Choosing this Program	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Advice of parent, other relative, friend, or school official	27 (23.1%)	13 (13.4%)	17 (20.0%)	9 (8.2%)	66 (16.1%)
Wanted a practical skill; wanted to learn how to build or repair things	36 (30.8%)	24 (24.7%)	0 (0.0%)	15 (13.6%)	75 (18.3%)
Previous interest in trade or subject	51 (43.6%)	63 (64.9%)	6 (7.1%)	8 (7.3%)	128 (29.3%)
Related to future educational plans, including college	12 (10.3%)	11 (11.3%)	9 (10.6%)	39 (35.5%)	71 (17.4%)
Related to current job	0 (0.0%)	0 (0.0%)	2 (2.4%)	0 (0.0%)	2
Opportunity to Work While in School	6 (5.1%)	1 (1.0%)	49 (57.7%)	4 (3.6%)	60 (14.7%)
Not interested in College Course	4 (3.4%)	4 (4.1%)	11 (12.9%)	28 (25.5%)	47 (11.5%)
Assigned to this course or trade	18 (15.4%)	13 (13.4%)	3 (3.5%)	8 (7.3%)	42 (10.3%)
Easy program, opportunity to get out of school early, friends in program	6 (5.1%)	0 (0.0%)	23 (27.1%)	18 (16.4%)	47 (11.5%)
Don't Know	1 (0.8%)	2 (2.1%)	1 (1.2%)	2 (1.8%)	6 (1.5%)
Other	1 (0.8%)	1 (1.0%)	3 (3.5%)	7 (6.4%)	12 (3.0%)
TOTAL REASONS	162	132	124	138	556
Total Number of Students Giving at Least one response	117	97	85	110	409

NOTE: The percentage figures in the above Table are based upon the proportion of students giving that response not upon the proportion of all responses given by students in that program category.

enrolling in a general academic program was future educational plans. Still only a minority (35.5 percent) had this reason. At the same time, about one-fourth (25.5 percent) entered a general academic program to avoid the college preparatory program, and 16.4 percent because it was an "easy" way to earn a diploma.

About half (49.1 percent) of the 352 students answering the question about persons influencing their choice of program, cited parents and other relatives. But another 36.6 percent claimed that the decision was entirely their own. Friends (19.3 percent) were mentioned as frequently as teachers, counselors, and other school officials. Students in the vocational programs were more likely to point to parents and relatives; students in work study and general academic programs, to school personnel.[1] The differences in the distribution of responses were significant at the .05 level.

Few of the students had difficulty getting into their school. The bulk (81.2 percent) of responding students stated that acceptance was either easy or automatic. Only 14.4 percent had difficulty. The two major factors hindering entry were a waiting list due to the popularity of a program and the use of grades and other criteria to determine eligibility. Coop vocational students (20.5 percent) and work study students (18.3 percent) were more likely to have experienced a problem gaining admission. The distributions, of responses were significantly different at the .01 level.

These findings support those cited earlier in the chapter that certain coop vocational programs used various methods to "screen" students. Thus, the selection criteria of certain schools did impart some bias in the type of student enrolled, a factor complicating the evaluation of the effect of programs specifically upon labor market experiences of students both while in high school and afterwards.

Only a minority (38.3 percent of the 420 students answering) had considered an alternate trade or program. The bulk of these (75.8 percent) were regular and coop vocational students. The differences in the distributions of responses were significant at the .001 level. Very few (16.0 percent overall) of the coop and the regular vocational students had thought of attending general academic or college preparatory programs. On the other hand, the same proportion of the relatively few general academic students who had considered alternatives had considered coop vocational and college preparatory (37.8 percent in both cases). The differences, in the distributions of responses were significant at the .001 level.

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[1] Twenty-five students said that parents or other relatives sought to discourage them from enrolling in their high school program. Eighteen of these twenty-five were in a vocational program; seven were coop students.

Relationships with High School Guidance Counselors

A large majority of the students (66.2 percent) had at least one visit with their high school guidance counselor. There were large differences among programs. Only 29.4 percent of the coop vocational students had met with their counselor compared to over ninety percent of the general academic. The differences in the distributions of responses were significant at the .001 level.

In about half (51.6 percent) of the cases, the number of visits were limited to one or two a school year. Nearly all (91.7 percent) of the coop vocational students had had just one or two meetings in a school year, but more than thirty percent of the work study and general academic students had had at least five. The differences in the distributions of responses were significant at the .001 level.

The coop vocational students were far less likely to have ever visited a high school guidance counselor even when compared to students in the regular vocational programs. There were a number of reasons for this. First, most of the coop vocational programs were housed in a comprehensive high school whose guidance counselors served the entire student body. The coop programs were located on separate floors or in separate buildings, which contributed to the social isolation of coop students from the rest of the students and other school personnel. A number of coop students did not even know that there was a guidance counselor.

The three topics most frequently discussed with a guidance counselor were plans for post-high school education (36.9 percent), the selection of a high school course (35.5 percent), and post-high school job plans (29.8 percent). General academic students were more likely to discuss post-high school educational plans (51.5 percent) and course selections (45.6 percent); coop, regular vocational, and work study students were more likely to discuss post-high school job plants(32.4 percent, 32.8 percent, and 42.7 percent respectively). The distributions of responses differed significantly at the .01 level.

It should be noted that only 43.6 percent of the 282 students who gave reasons for visiting their guidance counselor were willing to express their views on the value of the counseling received. This was one of the few items that students were generally unwilling to voice an opinion about. Only about half (48.8 percent) of those giving an opinion gave a positive one; about one-third (34.1 percent) gave a negative one, and the rest (17.1 percent) a mixed one. The distribution of responses by program was not significantly different at the .10 level.

Student Assessment of High School Programs

Student comments about their programs include the perceived advantages and disadvantages, and suggested improvements. Most (84.0 percent) of the 418 students responding felt that their program offered some advantages; just 14.4 percent claimed it offered none. Even a large majority of the general academic students, (69.4 percent), the least favorably disposed group, could cite advantages. The coop vocational students (90.5 percent) were most likely to feel this way. These differences were significant at the .001 level.

The one advantage coop vocational students emphasized was the opportunity to acquire marketable skills (81.6 percent); next in importance were the kind of courses (41.2 percent), and the ability to gain job experience while attending school (29.8 percent). See Table 3-6. Similarly, the regular vocational students gave much weight to acquiring marketable skills (74.8 percent) and to the courses (51.7 percent), but unlike their coop peers, rarely mentioned the job experience (3.4 percent), the distinguishing feature of the coop program. The work study students were less likely to mention learning a saleable skill (18.7 percent), and far more likely the chance to earn money while in high school (44.0 percent) and the avoidance of a full-time school day (36.0 percent). On the other hand, the work study students like the coops (29.8 percent), saw some benefit in acquiring work experience (21.3 percent), before graduation.

About half (52.2 percent) of the 393 students responding to the question thought that their high school program had some disadvantages. (1.0 percent were uncertain.) A common thread was the lack of substance or impracticable nature of programs. The coop vocational students found fault with specific courses (27.1 percent), the lack of discipline in the schools (27.1 percent and job opportunities (22.0 percent). Students in the other programs were more prone to concentrate on one or two features. Thus the most common complaint of the regular vocational students was about teachers and other school

TABLE 3-6: Students' Assessment of Types of Advantages in High School Program, by High School Program Category, (includes Multiple Responses). (N=351)

Advantage	High School Program				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Gain job experience while in school	34 (29.8%)	3 (3.4%)	16 (21.3%)	12 (16.0%)	65 (18.5%)
Opportunity to earn money while in school	15 (13.2%)	0 (0%)	33 (44.0%)	3 (4.0%)	51 (14.5%)
Learn Occupational skills Applicable to Job Market	93 (81.6%)	65 (74.8%)	14 (18.7%)	27 (36.0%)	199 (56.7%)
Courses in Program, including shop courses	47 (41.2%)	45 (51.7%)	12 (16.0%)	37 (49.3%)	141 (40.2%)
Teachers, counselors, etc.	7 (6.1%)	16 (18.4%)	11 (14.7%)	5 (6.7%)	39 (11.1%)
Background for further education	0 (0%)	0 (0%)	1 (1.3%)	16 (21.3%)	17 (4.8%)
Chance to earn diploma in unique way	2 (1.8%)	2 (2.3%)	13 (17.3%)	2 (2.7%)	19 (5.4%)
Easy work load, only part-time school day	10 (8.8%)	5 (5.7%)	27 (36.0%)	11 (14.7%)	53 (15.1%)
School Characteristics (discipline, extra-curricular activities)	1 (.9%)	5 (5.7%)	3 (4.0%)	10 (13.3%)	19 (5.4%)
Other Reasons	0 (0%)	1 (1.2%)	4 (5.3%)	0 (0%)	5 (1.4%)
TOTAL REASONS	210	147	138	113	608
Number of students giving at least one advantage	114	87	75	75	351

Note: Percentages in above table are based upon proportion of students giving a particular response not upon the proportion of all responses given by students in each program category.

staff (37.2 percent), followed by the inadequacy of shop facilities (28.8 percent), and the weaknesses of specific parts of the curriculum (25.4 percent). A large minority of the work study students criticized the lack of content to the curriculum (43.2 percent), as well as the behavior of fellow students (37.8 percent). General academic students had one dominant complaint, namely, the lack of content to the program including the inablitiy to apply course material to a job (48.0 percent).

The complaints of the coop vocational students and work study students over jobs were directed at both their number and their quality. Some of the coop vocational students who were unemployed at the time of the in-school interview resented the fact that they were not working while students in the junior class were. The job dissatisfaction of the work study students was over the lack of training at work. Many of the jobs were traditional "teenage" ones in retail trade and the service sector requiring few skills and providing very little training. These students felt that a greater effort should be made by school officials to develop jobs which offered training opportunities.

A third student concern was course quality. Many of the vocational students, both cooperative and regular, claimed that their academic courses, particularly math and the physical sciences, were shallow. Students related that they were advised by their guidance counselor to attend a prep school before applying for college. Other students complained about the inadequacies of their academic courses that led to poor performance on college entrance examinations.

The coop vocational and regular vocational students were quite similar in recommending improvements in shop facilities (48.9 percent vs. 49.3 percent) related instruction courses (40.4 percent vs. 37.0 percent), and the quality of teaching and guidance (21.3 percent vs. 24.7 percent). Coop students were more apt to suggest better job placement (23.4 percent vs. 15.1 percent) while regular vocational students were more apt to suggest improved discipline in the schools and more careful screening of students.

For a large majority of the students the decision to complete high school did not depend on the kind of program in which enrolled. Of the 376 students responding to the question, only 18.9 percent thought their program had made a difference. Over three-quarters (77.4 percent) claimed that they would have completed high school regardless. Reasons given for graduating included the value of a diploma for obtaining preferred employment or for admission into post-secondary educational institutions, as well as parental pressure. Nonetheless, the ability to attend their particular program apparently was important for about one-fourth of the coop vocational students (24.4 percent) and work study students (24.4 percent)[1]. In contrast, only 6.8 percent of the general academic students also admitted that their program favorably influenced their decision to finish high school. These differences were significant at the .02 level.

Programs and Attendance

High school attendance records obtained for 306 of the 427 students interviewed give some support for the view that school programs permitting outside work experiences provide additional motivation to attend school more frequently than do general academic programs. The mean number of days absent during the senior year ranged from a low of 18.6 for students in the coop vocational program to a high of 29.6 days for students in the general academic program. The absences of the regular vocational and work study students averaged 20.1 and 21.8 days, respectively. The difference in means between the coop students and general academic students was significant at the .01 level, and that between the work study students and general academic students, at the .02 level.[2]

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1. As well as 16.9 percent of the regular vocational.

2. The standard "t" test was used to determine the significance between sample means. The value of the "t" statistics were 3.83 comparing the coops, general academics, and 2.55 in comparing the work study and general academics.

TABLE 3-7: Students' Evaluations of Impact of School Program on their Retention in High School (N=376)

Response of Student as to Program Influence	High School Program Category				
	Coop Vocational	Regular Vocational	Work Study	General Academic	TOTAL
Program did have positive influence on decision to remain in school	31 (24.4%)	16 (16.5%)	19 (24.4%)	5 (6.8%)	71 (18.9%)
Program did not affect decision to stay in school	94 (74.0%)	77 (79.4$)	54 (69.2%)	66 (89.2%)	291 (77.4%)
Uncertain as to program impact	2 (1.6%)	4 (4.1%)	5 (6.4%)	3 (4.1%)	14 (3.7%)
TOTAL	127	97	78	74	276

NOTE: Responses of "no effect" and "uncertain impact" were combined before calculating the value of the Chi-Square statistic.

(1) Chi-Square = 9.963
(2) Degrees of Freedom = 3
(3) Significance = .02

Chapter IV

THE EMPLOYMENT EXPERIENCES OF STUDENTS DURING THE HIGH SCHOOL YEARS

This chapter is devoted to a description and analysis of the work experiences of the sample of students in the four programs during their high school years. The first part of the chapter contains a description of the job placement activities of the high schools participating in the study. The findings are based upon unstructured interviews with the directors and administrative staff of the programs in each of the schools. The second part presents and analyzes a series of data on the labor market experiences of the sample of students during their junior and senior years. The period examined was June 1, 1970 to May 31, 1972, a twenty-four month period beginning with the summer months preceding the junior year of high school and ending with the month prior to graduation. The information on labor market experiences was gathered by interviews with students conducted during both their senior year and the fall months immediately following graduation.[1]

Job Development Activities in the High School Programs

The methods adopted by the cooperative programs in developing jobs for students varied from one school to another, with the major differences frequently being attributable to the characteristics of the specific trades for which training was being provided. The coordinator of the electrical coop program claimed that the school had 30 to 40 firms actively involved in the hiring of its students. Many of these employers had graduated from the high school and cooperated with the program in part out of a sense of loyalty.[2] The list of active employers was constantly changing. The nature of employment in the electrical trades leads to a high rate of turnover, and as a result, a student could hold as many as ten jobs during the junior and senior years of high school. Among the difficulties in developing jobs for students was the age requirement imposed by certain firms. With regard to hiring standards imposed on the firms, the director stated that he usually requested employers to pay $2.00 per hour, but that he would accept a lower starting wage if the job provided an outstanding training opportunity.

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[1] The interview during the senior year was a personal interview conducted in the high school in which the student was enrolled. Initial interviews were completed for 427 students. The second interview conducted during the fall of 1972 was primarily a telephone interview with the student.

[2] The director of the program commented that these employers "still feel that they are part of the school."

The cabinet-making and woodfinishing coop program developed in-school work opportunities for its students in a variety of firms in both the central city and neighboring suburban communities. Among the firms hiring coop students were furniture companies, furniture warehouses, counter top manufacturers, custom upholstery shops, and custom kitchen work firms.[1] The coop coordinator stated that he preferred to develop jobs for students in smaller firms where the student was more apt to receive training and direct supervision from his foreman. He felt that it was the responsibility of the school to see that the students were rotated on the job to get exposure to a variety of skills.

The coordinator of one of the auto cooperative programs had developed a working relationship with approximately 125 employers in the central city and suburbs, although he tried to place the students in jobs near their homes. He claimed that he would not send a student to a major auto dealer unless he was guaranteed that the student would be given diversified assignments. The coordinator requested a starting rate of $2.00 per hour since other students in the high school working in grocery stores earned that amount.

The two machine shop cooperative programs in the central city encountered difficulties in placing students due to the slack conditions in local labor markets and the outward movement of firms to suburban locations in recent years.[2] In one of the high schools, only 8 of the 23 seniors in the program were employed at the time of the interviews. The coordinator of this program admitted that success in recruiting employers is dependent upon existing economic conditions, and that the program is more easily sold to employers when they are actively hiring new workers.

The director of one machine shop coop program reported little or no difficulty in obtaining a $2.00 per hour wage, since firms were well aware that the student would soon leave if a lower wage were paid. Some of the large firms claimed that problems with insurance companies prevented them from hiring young workers, under 18 years of age, while others hired young workers, but only allowed them to perform menial tasks, such as sweeping floors. According to the coordinator of the coop program, the state labor policy allows 16 year old students in cooperative vocational programs to be employed in machine shops.

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[1] The placement effort was hampered in part by the out-movement of firms to suburban locations and a few students had turned down jobs due to a lack of transportation. In addition, several students claimed they did not accept employment in some firms due to their location in the black neighborhoods of the city.

[2] The director of one program pointed out that the school had lost twenty employer prospects during the past five years due to out-migration of firms from the central city.

The coordinator of the other cooperative machine shop program located in the central city commented that most of the recent job placements were in the smaller companies, principally job shops. These smaller firms normally experience greater difficulty in recruiting and retaining employees due to their lower fringe benefits and unstable employment patterns. As a result they were more willing to hire coop students, particularly since they could pay them a wage lower than that received by regular, full-time employees. The coordinator mentioned that he consistently experienced difficulties in recruiting local branches of the large, national manufacturing firms for participation in the coop program. In developing jobs for students, the coop staff attempted to obtain a starting wage of $2.25 per hour. They generally sought to hold the initial wage at this level of $2.25 since they believed that if the student received too high a wage he would quit school to earn more income by working full time.[1]

The coordinator of the sheet metal cooperative program indicated that participants in the program were placed in a variety of firms located in both the central city and suburbs. The list of active employers was fairly stable, with most of the firms participating in the hiring of students each year. The attraction of the program to employers was stated to be that of providing the firm with a "young man during his junior or senior year whom the employer can observe to see how he fits into the company's operation without having to pay too much." The starting hourly wage for juniors ranged between $1.75 - $1.85 although a few companies paid a starting wage of $2.40 per hour. Senior students generally were paid $2.30 to $2.40 per hour.

The coop coordinator in the suburban vocational-technical school stated that in recruiting employers for participation in the coop program he emphasized the ability of the school to provide the employer with "bright, young, competent students." Not only was the school capable of providing this labor pool, but there would be no commitments on the firm's part in hiring these students upon graduation from high school.

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[1] Other training programs have adopted a similar policy of developing jobs for participants that do not pay too high a wage to prevent dropouts from the program.

The coordinator of the coop program noted that the school had strict agreements with employers regarding the role of the job as a learning experience for students. If a given job assignment was only capable of providing a limited set of skils to the student, the program staff would request the employer to transfer the student to a new position when the job had been mastered. The coordinator attempted to negotiate a starting wage of at least $2.00 per hour for participants.

The coordinator of the newly-created coop program in one of the suburban vocational schools claimed that in recruiting employers he did not try to convince them to participate, but simply informed them of the program's existence and its features. The bulk of the companies initially participating in this program was located in the same city as the high school. Since only one-third of the senior class had access to an automobile to commute to work, the geographic scope of the recruitment effort had to be limited. Those firms participating in the program were given a "progress record" on the back of the coop agreement informing them in general terms of the type of training expected to be given the student. The coop director remarked that he would take a student off the job if he felt that the company was "exploiting him." At the same time, however, employers were informed that the school would remove a student from a job if he is not performing up to par. At the outset of the program, this school had reached agreement with participating employers for payment of a starting wage of $2.00 per hour for all students to avoid both inter-student and inter-company competition. Some employers wanted to pay more than $2.00 per hour, but the school insisted on a set wage.[1] The coop staff felt that given an entry wage of $2.00 per hour, more employers would be willing to tolerate some of the problems encountered in working with students.

The job placement activities in the central city trade high school were primarily focused on graduating seniors. The placement function was handled by the senior class guidance counselor together with the heads of each trade division. The placement process was on-going throughout the entire year; however, the specific job placements of students began in February of each year. According to the senior class guidance counselor, 80 to 90 percent of the graduating seniors were placed by the school.[1] Among the firms hiring the graduates of the high school were the large local utilities, hospitals, data processing firms, and shipbuilding companies. One of the local utility companies set aside a number of training slots in electrical repair for graduates, particularly minority students who were invited to participate in a special training program on weekends beginning in February of the senior year. The senior class counselor commented that the smaller employers were treated differently in the placement process, claiming that they wanted a "good worker" at the outset to minimize their training costs.

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[1] The coordinator of the cooperative program did point out that several students had quit their jobs when they discovered that they were being paid less than regular employees performing the same job.

Most of the job development efforts in the surburban technical high school were devoted to the placement of graduating seniors.[2] Only 35 percent of the seniors were placed by the school. Approximately 30 percent of the graduating seniors lined up jobs on their own, while an additional 35 percent enrolled in a post-secondary technical school or a four-year university.

The job placement activities in the work study programs also varied quite sharply from one school to another. In the outer-suburban high school, the program director had previously been responsible for the job placement of participants, but had shifted that responsibility to the students themselves. The director stated that this policy was adopted to give students experience in seeking work on their own. The director would then assist those students unable to line up a job for themselves prior to the beginning of the school year. At the time of the in-school interviews, at least ten of the participants were not employed.

In a second work study program located in a comprehensive high school in an inner-suburban community, the coordinator of the program was officially in charge of the job placement of participants; however, the majority of the students found their own jobs. The students were employed in approximately 100 different establishments; the major employers were retail shops, including

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[1] The senior class counselor claimed that of the 124 graduates of the class of 1971, 108 were employed in a trade, including 81 who were working in the same trade they had been enrolled in during high school. These results yield an overall trade placement rate of 87 percent and a specific trade-related placement rate of 75 percent.

[2] The guidance counselor also attempted to develop jobs for students who were dropping out of high school. He preferred to place these students in a local candy factory, a low wage employer, since he believed that after being exposed to the adverse working conditions in this company they would be more likely to return to school.

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department stores and supermarkets, banks, nursing homes, gas stations, and fast food restaurants.

In a third work study program housed in a high income, inner-suburban community, the students were encouraged to establish job goals for themselves by the senior year and to find their own jobs. The school provides job placement assistance to the student if job search on their part is not successful. Teacher-coordinators are responsible for the placement of students in their respective courses. The director of the program reported that the vast majority of the jobs held by the participants were located in the same town as the high school.

The central city, work study high school had the most thoroughly organized job development program and probably, therefore, the most successful. There were six school officials responsible for handling the job development function, although they also carried out additional duties. One of the goals of the program was to have a job developed for each student so that he could begin working on the first day of the school year; and on an average day during the school year approximately 95 percent of the student body is employed. The job development counselors personally contact firms for participation in the program. They do not ask the company for "moral commitments" or "hiring quotas," although they do attempt to convince the employer that participation in the program does provide him some benefits.

Criteria Utilized in Matching Students with Available Jobs

The directors and coordinators of the high school programs were asked to comment on the criteria they utilized in matching students with available job opportunities. The objective was to determine whether the coop programs tended to evaluate students on the basis of their overall shop and classroom performance and then place them in jobs on the basis of their position in the "hiring queue."[1] Coop placement staff were asked whether students with "conduct problems" tended to get placed at the botton of the hiring queue and whether or not they were reluctant to attempt to place those students who had posed behavioral problems in the shop or classroom. The eligibility and job matching criteria varied from one school program to another.

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1. A brief discussion of the single queue theory of unemployment as well as the presentation of a "dual labor market" analysis of unemployment can be found in: Doeringer, Peter and Piore, Michael, Internal Labor Markets and Manpower Analysis, D.C. Heath and Company, Lexington, 1970, pp. 163-183.

The coordinator of the electrical coop program stated that the staff first attempted to place seniors in coop jobs, and that the staff insisted that students take coop jobs if they became available during the school year. The staff of the program did rely upon the grades of the students in allocating students among available jobs. Those students with the least understanding of the trade were normally placed in electrical supply stores or in electrical maintenance work. These maintenance positions, in firms including hospitals, were characterized by close, direct supervision from the foremen.

The coordinator of the coop programs in cabinetmaking, woodfinishing, and upholstery stated that the program staff attempted to place all senior students, although some preferred not to work so that they could participate in school athletics. The automechanics coop program in the central city generally placed on jobs only students in the senior class, although a junior year student would be placed if he were "extremely competent" in the trade. In assigning students to available jobs, the staff relied upon a variety of factors, including science grades, shop grades, attendance records, and student "personality."

In one of the cooperative machine shop programs located in the central city, juniors were generally not placed at the outset of the school year. The delay in placing junior year students was due both to the fact that some students were under sixteen years of age and hence legally ineligible to work with machinery, and to the perceptions of the staff that some students were simply not ready to accept the responsiblities of a job. The coordinator reported that the school would not attempt to place those graduating seniors who had serious attendance problems or drug problems while in high school.

The coordinator of the coop autobody and sheet metal programs which were located in the central city indicated that students were placed in employment according to their ability. The "best" students, in terms of shop and academic course grades, were placed in the more demanding jobs although the student's attitude and attendance records were also taken into account when placements were made.

In the suburban vocational-technical high school, only seniors are eligible for participation in the coop program, since the director of the school felt that juniors lacked sufficient shop experience to be able to perform well on the job. Coop placements are made on the basis of shop grades and recommendations from shop teachers. In addition, the staff emphasize three other factors - the "temperament," personality, and transportation availability of the student. The coop placement officer commented that he would not attempt to locate jobs for students with few shop skills and poor attendance records because such students would jeopardize future relationships with cooperating employers.

In the suburban vocational high school which had initiated a coop program in the fall of 1972, students are eligible for participation only during the senior year, because the principal believes that only one year of prior shop training is not sufficient for the job placement of students. The coop coordinator does, however, assist students in finding part-time employment during their sophomore and junior years of high school. In providing such assistance, he attempts to develop jobs that have potential for being converted to a coop position for the student during his senior year.

Students in the central city trade high school were given assistance in finding part-time employment by the guidance counselors. The counselor would attempt to place students in jobs both in and out of the trades. The guidance counselor was also responsible for placing students in full-time employment upon graduation. In placing students, the guidance counselor usually conferred with the shop teachers of the student. The attendance record of the student was taken into consideration since employers placed major emphasis upon that factor in their discussions with school placement staff.

Students in the inner-suburban technical high school were also offered in-school placement assistance by the counseling staff. Whenever an employer contacted the school to inform the counseling staff of a job opening, the counselor would simply request shop teachers to refer him any student seeking a part-time job. If the number of applicants exceeded available job openings, the guidance counselor would select that student who best fit the "employer's needs."

Within the central city, work study high school, an effort was made to place all students in employment at the outset of the school year. The initial job placement was in low-level, unskilled jobs in hospitals, cafeterias, and delivery stores. If the student performed well on the job, he would then be placed in a higher-wage, more skilled job in another firm. Students who had been fired from their jobs were required to attend school for the entire day. The staff desired that students pick up the "middle class work ethic," and to achieve this goal, they rewarded students for performing well on the job and punished them for job misbehavior.

Monitoring of Cooperative Program Job Assignments

The coordinators of the cooperative vocational programs in the central city high schools indicated that they visited the coop job sites of the students about once a month to obtain appraisals from the employers of the students' work performance. Several of the coop coordinators admitted that once a student had been employed for a few months the frequency of the monitoring visits was reduced. However, the employers were informed to contact the school immediately if any major problems with the student arose, such as excessive absences or tardiness.

The coop coordinator in the suburban vocational-technical high school reported that he spends three days of every week visiting current coop employers and recruiting additional firms for participation in the program. The newly-recruited firms were located in suburban communities outside the city in which the high school itself was located. In this program, employers grade each student on a weekly time card.

The program director in the suburban vocational school with the newly established coop program indicated that he preferred telephone contacts rather than frequent personal visits to participating firms. He still visits the job site of the student once a month primarily to let the student know that the school is interested in his progress. The visits are primarily intended to provide a psychological boost to the student. The school also uses quarterly rating sheets in conducting employer evaluations of the work performance of students.

The suburban work study programs generally were characterized by minimal amounts of on-site monitoring. Once a job had been developed for the student or once an employer had been informed of the purpose of the program by the school, there was little further contact between the school and the employer. On the other hand, the work study high school located in the central city was characterized by frequent job site visits by program staff. Each of the teachers would visit, either weekly or bi-weekly, the job site of the students under his supervision to obtain the foreman's assessment of the student's work performance. The visits were also utilized as a symbol of the school's interest in the work progress of each participant. The staff also visited the students' homes to discuss their in-class and work performance with the parents.

High School Employment Experiences

It should be noted that the number of observations in each program category will vary from one variable to another. Observations are available for all 427 students in the sample only for work experiences during the junior year of high school. As a result of the inability to contact all students during the first follow-up, the number of observations for senior year employment and earning's variables fell below 427. Differences in numbers of observations will also occur due to missing information for some of the variables, to varying proportions of students in each program category with employment and earnings' records, and to varying numbers of jobs held by individual students within program categories.

a. Labor Force Activity During High School Years

The proportions of time spent in the labor force during the junior and senior years of high school by the sample of students are discussed in terms of his activity in the labor force. These "Labor Force Activity Rates" were calculated by combining the total number of weeks of employment and unemployment of each student during the June 1, 1970 to May 31, 1972 period and dividing the resulting sum by 104, the maximum number of weeks that a student could have participated in the labor force.[1] The means and standard deviations of the "labor force activity rates" for the four high school programs are presented in Table 4-1.[2]

The mean labor force activity rate for the sample of cooperative vocational students was 68.2 percent with a standard deviation of 28.5 percent. This mean was 2.6 percent above that for the regular vocational students; however, the difference between these two sample means was not significant at the .05 level.[3] The range in labor force activity rates for both of these groups varied from 0 percent to 100 percent. Some students did not participate at all in the labor force during the junior or senior year of high school while other students were in the labor force every week during this two-year period. The greatest difference in activity rates was between work study and general academic; the difference in sample means between these two groups was statistically significant at the .01 level.

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[1] These "Labor Force Activity Rates" should not be confused with the concept of the "labor force participation rate" employed by the Bureau of Labor Statistics although they are constructed in a similar fashion. The "labor force activity rate" is measured on the basis of a student's labor force activity over time rather than at one point in time. It represents the proportion of time (104 weeks) during the junior and senior years of high school in which the student was employed or unemployed. Differences in hours of work while employed are not considered.

[2] Because of the large numbers of tables in this chapter, they will be run consecutively at the end of the chapter.

[3] The test of significance being utilized is that of the "t" test for differences between sampling means. See: Yamane, Taro, Statistics: an Introductory Analysis, Harper & Row, New York, 1964, pp. 482-492.

Students in the vocational training programs, both regular and cooperative, were combined into trade categories to allow for comparisons among trades in their labor force activity. See Table 4-2. The auto-related trades include students enrolled in autobody and automechanic courses. The carpentry related trades include students enrolled in carpentry, cabinetmaking, and woodfinishing courses. The machine and metal related trades consist of students enrolled in machine shop, metal fabrication, and sheet metal courses. The electrical and electronics group consists of students enrolled in those two trade programs. Finally, the miscellaneous group contains students enrolled in upholstery and painting and decorating courses.

The mean labor force activity rates do vary among the trade categories. The greatest spread was between students in the auto related courses and students in the carpentry related courses, but, the difference in sample means of 10.5 percent was not statistically signficiant at the .05 level.[1]

The cooperative vocational students do have higher mean labor force activity rates in the carpentry courses and electrical courses; however, they do not fare as well as their regular vocational counterparts in the auto trades and metal trades. None of the observed differences in sample means between cooperative and regular vocational students are significant at the .05 level. Participants in the cooperative vocational programs do not achieve superior labor force activity rates in comparison to their regular vocational counterparts during the high school years.

b. Employment of Students During Junior and Senior Years

Table 4-3 reports upon the number of weeks of employment obtained by students in each of the high school programs. The coop students had a mean number of weeks of employment during the junior and senior years of 30.4 weeks and 36.7 weeks respectively, higher than those of voc ed by 2.3 weeks during the junior year and 4.1 weeks during the senior year. Neither of the observed differences in sample means however are statistically significant at the .05 level.

The students in the work study programs had a mean number of weeks employment during the junior and senior years of 34.5 weeks and 42.7 weeks respectively, the highest among the four program categories in both years. The mean weeks of employment obtained by work study program participants exceeded those of general academic students by 6.7 weeks during the junior year and 9.9 weeks during the senior year. The observed differences in sample means between the work study and general academic students were significant at the .01 level for both years.[1]

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[1] The "t" value is only 1.48, which is below the critical "t" value of 1.95 (two-tail test) required for rejection of the Null Hypothesis of Equality between population means.

Table 4-4 contains data on the mean number of weeks of employment obtained by the students in various trade programs during their junior and senior years of high school. Students in the auto trades had the highest mean number of weeks of employment during the junior and senior years of high school, for a total of 72.2 weeks. Students in the carpentry-related trades had the lowest mean weeks of employment, with only 57.4 weeks. The difference in sample means between students in the auto and carpentry-related courses was significant at the .05 level.

Table 4-5 shows that the mean number of weeks of employment during the two years was higher for cooperative students in the carpentry-related (63.6 weeks vs. 52.6 weeks), electrical (65.6 weeks vs. 61.6 weeks), and metal trades (66.1 weeks vs. 61.9 weeks). Regular vocational students in the auto trades outperformed their counterparts in the cooperative auto programs (75.2 weeks vs. 69.3 weeks). None of the observed differences in sampling means between the cooperative and regular vocational students in each trade are statistically significant at the .05 level. The high school employment experiences of the cooperative vocational students are not superior to those of regular vocational students either in the aggregate or on a trade-by-trade basis.

c. "Cooperative Jobs" Held by Cooperative Students

A "coop" job is defined for purposes of this study as a job held by a student in a cooperative vocational program which was officially sponsored by the school, involved a written agreement by the employer with the school outlining responsibilities of the firm to the student, and provided full-time work for the student on alternate weeks during the school year.

Of the 173 jobs obtained by students in cooperative vocational programs during the junior years, only 74 or 42.8 percent of the jobs were "coop" positions. See Table 4-6. The remainder were summer jobs or part-time jobs during the school year which were not officially sponsored by the high school as part of the cooperative vocational program. As the school year progressed, a higher share of the jobs obtained by the students represented "coop" positions.

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[1] The "t" tests were conducted on the basis of a one-tail test.

During their senior year, the cooperative vocational students held 235 jobs, of which 152 or 65.0 percent were "coop" jobs. Again, the ratio of "coop" to total jobs increased during the school year, with second and third jobs having 78.2 percent and 81.4 percent of their positions in the "coop" category respectively.

d. Occupational Composition of Jobs Held

The occupational titles of the jobs held by students, were those reported by the students during the in-school and first follow-up interviews. The beginning job titles of each job held during high school are presented in these tables, and the occupational categories used are those of the Bureau of the Census' Occupational Classification System.

During the year, June 1, 1970 to May 31, 1971, students in the four programs combined held 510 different jobs, and of that total, more than half (51.0 percent) were in laborers or cleaning and food service occupations. Slightly more than one-third of all jobs were in the craftsmen and operatives positions, including transport operatives. Only 69 of the jobs (13.5 percent) were in white-collar occupations, with clerical positions accounting for over two-thirds of the total. See Table 4-7.

Table 4-8 provides information on the occupational distribution of jobs held during the junior year by students in each high school program category. Substantial differences do exist among the four programs. For example, only 39.3 percent of the jobs of cooperative vocational students were in the laborer and service occupations in comparison to 60.4 percent of the jobs held by regular vocational students and 59.5 percent of the jobs of general academic students.

Of the 637 different jobs held by students during the senior year (June 1, 1971 to May 31, 1972) 234, or 36.7 percent, were in the laborer, cleaning service, and food service occupations. Operatives positions, with the exception of transport operatives, and craftsmen positions accounted for 268 or 42.1 percent of all jobs. Students in the cooperative vocational (55.5 percent) and regular vocational (32.0 percent) were more likely to be employed in blue-collar craftsmen and operative positions than participants in either work study programs (22.8 percent)or general academic programs (14.8 percent). Only 5.2 percent of the jobs held by cooperative vocational students were in white-collar occupations in comparison to 19.1 percent among work study students and 25.6 percent of general academic students. The differences in the distributions of occupations among high school programs were significant at the .001 level.

As students changed jobs during the senior year, they were more likely to obtain employment in the blue-collar occupational areas. The share of jobs accounted for by craftsmen and operatives (excluding transport operatives) rose from 35.3 percent on the first job to 51.9 percent on the second job and, finally, to 58.2 percent on the third job during the senior year.

Only 25.7 percent of all the jobs held by coop vocational students during the senior year were in the laborer and service occupations, considerably less than by students in the other programs. At the same time, nearly 72.0 percent of the cooperative vocational program participants' jobs were in the craftsmen and operative positions, a considerably larger proportion than in the other programs. The differences in the occupational distributions of jobs held by the students in the four programs during the senior year were significant at the .001 level. See Table 4-10.

Between the junior and senior years of high school, a sharp shift occurred out of the laborer, food service, and cleaning service occupations. While these occupations accounted for 51.0 percent of all jobs held during the junior year, their share of all senior year jobs had fallen to 36.7 percent. See Table 4-11. Blue-collar occupations, including craftsmen and operatives exclusive of transport, increased their share of all jobs held from 31.4 percent in the junior year to 42.1 percent in the senior year. While students in each high school program category experienced a rise in the share of jobs in the blue-collar occupations, the cooperative vocational students posted the largest gain, with the share of blue-collar jobs (including transport operatives) rising from 55.5 percent in the junior year to 71.7 percent in the senior year.

The occupational characteristics of jobs held by employed males 16-17 and 18-19 in the area during March of 1970 are presented in Table 4-12. Among males in the 16-17 year old age category, more than fifty percent were employed in laborers or service occupations. Another 28.0 percent of this group were employed in white-collar occupations, and only 20.0 percent held jobs in the craftsmen and operatives categories. The occupational distributions of all males aged 16-17 in the area and the sample of students in our study during the junior year of high school are essentially identical with respect to laborer and service occupations (52.2 percent vs. 52.6 percent for the sample of students); however, the students in the four high school programs were more likely to be employed in craftsmen and operatives occupations (33.9 percent vs. 19.9 percent for all males aged 16-17 in the area).

e. Industrial Composition of Jobs Held by Students

The wholesale and retail trade sector was the dominant employer of students during the junior year of high school, accounting for 44.5 percent of the total, while finance and insurance, services, and government sectors were the source of employment for an additional 29.8 percent. The industrial distributions of jobs did vary widely among the four high school programs, with the cooperative vocational students deviating most sharply from the overall distribution. Of the 173 jobs held during the junior year by cooperative vocational students, only 55.5 percent were in either the trade or service sector, while for students in other programs the proportion ranged from 2/3 to 3/4. On the other hand, cooperative vocational students were far more likely to be employed in either construction or manufacturing; during their junior year, 40.5 percent of their jobs were in the construction or manufacturing sectors, in comparison to 18.0 percent, 15.6 percent, and 10.7 percent of the jobs held by students in the regular vocational, work study, and general academic programs.

Industries were combined into three major industrial categories in Table 4-13 to allow for statistical testing of the differences in the industrial distributions of employment among the four high school programs. The data readily reveal that the jobs of cooperative vocational students were more likely to be located in the goods-producing, transportation, and utilities sectors of the economy. At the same time, it can be seen that general academic students were highly concentrated in the trade sector. The differences in the distributions of employment by industry are statistically significant at the .001 level.

During the senior year the wholesale and retail trade sector remains the largest employer of the students (35.4 percent), while finance and insurance, services, and government provided another 27.5 percent. The manufacturing and construction sectors were the source of employment for approximately one-third (34.3 percent) of the jobs held.

Major differences in the industrial distribution of employment continued to exist among students in the four high school programs. The trade and services sectors were the source of employment for only 35.2 percent of the students in the cooperative vocational program, but three-fifths or more in the other programs. On the other hand, 43.0 percent of the jobs of coop students were in the manufacturing sector in comparison to only 18.7 percent, 18.2 percent and 7.3 percent of the jobs held by the other three programs.

Industries were combined into three major industrial groups in Table 4-14. While only 37.2 percent of all the jobs held by students were located in the goods-producing, transportation, and utilities sectors, 63.0 percent of the jobs of cooperative vocational students were in those sectors of the local economy. Again, general academic students were primarily employed in the trade sector of the metropolitan economy. The differences in the distributions of employment by industry among the four high school programs are statistically significant at the .001 level.

The changes in the industrial composition of jobs held by students between the junior and senior years of high school are summarized in Table 4-15. The wholesale and retail trade sector experiences the sharpest decline in its share of jobs held by students, falling from 44.5 percent of all jobs in the junior year to only 35.4 percent of the total number of jobs in the senior year. Both the construction and manufacturing sectors record a gain, rising from 23.1 percent in the junior year to 34.3 percent in the senior year. The sharp shift into manufacturing and construction was substantially influenced by the employment patterns of cooperative vocational students whose share of jobs in these two sectors rose from 40.5 percent in the junior year to 58.2 percent in the senior year, a gain of approximately 18 percent.

In reviewing these findings on the occupational and industrial distributions of students' jobs one would conclude that the bulk of the jobs were in traditional "teenage intensive" areas of employment, such as laborer and service occupations with a high concentration in the retail and wholesale trade sector. The job distributions conform quite closely to those of employed males aged 16 to 19 in the Boston SMSA. Coop students do, however, obtain access to a substantially different set of jobs during the high school year. Students in these programs were significantly more likely to obtain employment in the craftsmen and operative occupations, and within the construction and manufacturing sectors of the local economy.

Wages and Hours of Work

The mean weighted hourly wages earned by students during the junior and senior years of high school are presented in Table 4-16. A weighting process was required due to the fact that some students held more than one job during the year. The weights utilized in these calculations were the proportion of total employed weeks spent on a given job during the junior or senior year. The wage earned on each job held by the student was multiplied by its relevant weight, and these individual results were summed to obtain the weighted hourly wage.

During both the junior and senior years, the mean weighted hourly wage on jobs held by coop students was lower than those of other programs. For juniors, the coop wage was $2.01, or $.11 below that earned by voc ed students, but the difference is not statistically significant at the .05 level. Other differences during the junior year were also not significant at the .05 level. During the senior year, general academic students did earn a wage $.22 above that of the cooperative vocational students, and this particular difference was significant at the .05 level.[1]

The lower hourly wages received by cooperative vocational students relative to general academic students during the senior year is somewhat surprising, given the types of industries in which they were employed. The cooperative vocational students were highly represented in the construction and manufacturing sectors, in which male workers employed 50 to 52 weeks during 1969 earned median incomes of $9909 and $9568 respectively.[2] General academic students were concentrated in the retail trade sector, in which male employees working 50 to 52 weeks during 1969 only earned $7927. One might have expected entry-level wages in the higher-wage industries of manufacturing to be above those in the retail trade sector.

The lower hourly wage of cooperative vocational students might be viewed as an investment by these students in return for their receiving on-the-job training within the company, which has a potential economic payoff in other firms in the local economy. The cooperative vocational program staff thus negotiate a lower hourly wage to induce employers to hire and then train student participants. The notion of "joint exploitation" mentioned by several coop program coordinators would appear to be applicable to this particular situation. Students are "exploited" by employers (i.e., paid wages below those offered on traditional entry-level positions), in order to receive training with which they can later transfer to other firms. From a hypothetical human capital perspective, these lower wages could be readily rationalized as an investment decision on the part of students.

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[1] The "t" value for the test of difference between these two sample means was approximately 2.44 which is significant at the .02 level.

[2] The earnings data refer to workers in the Boston SMSA during 1969. See: U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, PC(1)-D23, "Table 188. Industry of the Male Experienced Civilian Labor Force by Earnings in 1969 and Race: 1970," p. 986.

The hourly wages of students in the vocational training programs classified by cooperative or regular vocational status appear in Table 4-17. During the junior year only the cooperative students in the carpentry-related trades earned a mean wage higher than their regular vocational counterparts, and the difference was only $.01. On the other hand, the regular vocational students in the auto, electrical, and metal trades earned hourly wages above those of cooperative vocational students but none of the observed differences in sample means are significant at the .05 level.

During the senior year only the cooperative vocational students in carpentry-related trades again achieved an hourly wage higher than their regular vocational counterparts, but the difference of $.18 in sample means was not statistically signficant at the .05 level. In each of the three remaining trade categories, the hourly wages of the regular vocational students were above those obtained by cooperative vocational students. The difference in sample means between the two groups in the auto trades was significant at the .10 level while the difference between the two groups of students in the electrical trades was significant at the .05 level.[1] Thus, whenever significant differences in hourly wages do occur, the cooperative vocational students fare less well than their counterparts in the regular vocational programs.

The mean number of weekly hours of work on jobs held by students during the junior and senior years are presented in Table 4-18. The hours of work data for each student had to be weighted due to multiple job-holding during these two years. The weights were constructed in the same fashion as those utilized in the hourly wage tables; i.e., each job held by a student during a year was assigned a weight equal to its share of the student's total weeks of employment during the year.

During both the junior and senior years the mean weighted hours of work of jobs held by cooperative vocational students were below those worked by regular vocational students, and the differences in sample means were significant at the .05 level. In summary, regular vocational students obtained jobs during both the junior and senior years of high school which provided more weekly hours of work than the jobs held by cooperative vocational students. The major factor producing this difference in hours of work was that "coop" jobs, while offering 40-hours of work per week of employment were only held every other week during the school year. In addition, the job arrangements were more often made by the school.

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[1] The "t" value for the difference in sample means between the cooperative and regular vocational students in the auto trades was 1.93 (with 31 degrees of freedom) which is less than the critical "t" value of 2.04 for a .05 level of significance, but exceeds the critical "t" value of 1.70 for a .10 level of significance (utilizing a two-tailed test).

The mean levels of gross annual earnings of students in each program category during the junior and senior years of high school are presented in Table 4-19. The gross annual earnings of a student during a given year were derived by multiplying the number of weeks of employment by the product of the weighted hourly wage and the weighted hours of work per week. Those students with no employment during a year were excluded from the calculations of the means and standard deviations.

The mean gross income of employed students in the cooperative vocational programs during their junior year was $1823, or $137 below that achieved by employed students in the regular vocational programs ($1960). However, this difference was not signficiant at the .05 level. The mean gross income of employed students in the work study programs was the highest among the four high school programs. The mean annual income of the work study students was $2293 which was $466 above that earned by employed students in the general academic programs; and this difference was significant at the .05 level.[1]

During the senior year, the mean annual gross earnings of employed students in the cooperative vocational programs was $2142, about 5 percent below those of the regular vocational students, but this difference was not significant at the .05 level. Work study participants had a mean gross income of $2653, exceeding that obtained by general academic students. The difference in sample means was significant at the .05 level.[2] Students in work study programs do earn incomes significantly higher than their general academic counterparts

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1. The "t" value was 2.32, which was slightly below the critical "t" value of 2.35 (with 162 degrees of freedom) for signfiicance at the .01 level, utilizing a one-tail test. The difference in mean incomes between the work study and cooperative vocational students was $470. A "t" test of the difference between these two sample means (two-tailed test) yielded a "t" value of $2.38 which is significant at the .05 level.

2. The mean gross income of work study students during the senior year exceeded the mean income of cooperative vocational students by $511 and of regular vocational students by $399. The differences in sample means are significant at the .01 level (work study vs. cooperative vocational) and the .05 level (work study vs. regular vocational students).

during both the junior and senior years of high school, a result primarily attributable to more weeks of employment during the year rather than to higher hourly wages or more hours of work per week.

The mean level of annual earnings of employed students in various trade programs classified by cooperative and regular vocational status are presented in Table 4-20. During the junior year of high school, employed students in the cooperative auto and carpentry-related trades earned mean incomes above those of regular vocational students by $56 and $610 respectively. The differences were not, however, statistically significant at the .05 level. On the other hand, employed regular vocational students in the electrical and metal trades achieved mean gross incomes higher than those of their coop counterparts during the junior year, but these differences are also not significant at the .05 level.

During the senior year of high school, employed cooperative students in the carpentry-related and metal trades obtained gross incomes of $2327 and $2354, which exceeded those earned by regular vocational students in these trades by $57 and $320 respectively. The differences in sample means were not however large enough to be statistically significant at the .05 level. The difference in mean incomes between the coop and regular auto students was $857 which was marginally significant at the .05 level.

The comparisons of gross annual incomes earned by students in the cooperative and regular vocational trade programs during the high school years have revealed no income differentials in favor of the cooperative vocational students. In the one case in which a significant difference (.05 level) in earned incomes did exist, the regular vocational students achieved an income above that of the cooperative vocational group. The data on gross incomes earned during the junior and senior years of high school do not provide support for the hypothesis that a cooperative vocational program succeeds in reducing the opportunity costs of acquiring a high school education by providing the student with additional opportunities to either earn an income or to earn a higher income than students in regular vocational programs.

Reasons for Terminating Jobs During Junior and Senior Years

Of the 675 jobs terminated by students during their junior and senior years, 157, or 23.3 percent, were terminated involuntarily. See Table 4-21. The proportion of involuntary terminations varied quite sharply among students in the four high school programs. Among cooperative vocational students, 30.5 percent of the jobs were terminated for involuntary reasons (primarily layoffs by the company) while only 15.4 percent of the jobs held by general academic students were terminated involuntarily. The observed differences in termination reasons are due in large part to differences in the industrial composition of jobs held by students in these high school programs. While cooperative vocational students were concentrated in the cyclically-sensitive construction and durable manufacturing sectors, general academic students were heavily represented in the retail and private services sectors of the local economy. The differences in the distributions of termination responses are significant at the .01 level.

Those students who voluntarily terminated their jobs during the junior or senior years of high school were asked to cite the specific reason (or reasons) for terminating their employment. See Table 4-22. Slightly more than half of the reasons (50.5 percent) involved job-related factors other than the wage itself, such as the type of work they performed, the working conditions prevailing in the company, or their relationships with their supervisor or co-workers. Only 7.9 percent of the termination reasons cited involved dissatisfaction with the wage or fringe benefits associated with the job.

The distributions of responses to the question of reasons for voluntary termination varied among the four high school program categories. Both cooperative vocational and work study students were more likely to cite wage factors or other employment-related reasons for terminating their jobs. On the other hand, regular vocational students and general academic students were more likely to leave their jobs to return to school or enjoy more leisure time. The differences in the distributions of job termination reasons are significant at approximately the .02 level.

Unemployment Experienced by the Students During the Junior and Senior Years

The unemployment rates for all the groups did not appear large and the differences between groups were minimal. Coop students did appear to do slightly better, but the differences were not significant. Table 4-23 shows the unemployment factors by major trade, and by coop and regular vocational programs. The pattern is not consistent, but overall, the students in the coop programs seem to be better off.

During the junior year, the proportion of students experiencing one or more spells of unemployment ranged from 26.0% among students in the cooperative vocational programs to a high of 33.3% among students in the regular vocational programs. Neither the difference in sample proportions between the regular and cooperative vocational students nor the difference between the work study and general academic students was significant at the .05 level.

Of the 124 students reporting that they experienced unemployment during the junior year, 114 or 91.9% of this group encountered only one spell of unemployment during the year. The proportions of unemployed students experiencing only one spell were quite similar across the four program categories, ranging from 90.9% for students in both the cooperative and regular vocational programs to 93.8% of the unemployed students in the general academic programs.

The mean duration of an unemployment spell during the junior year ranged from a low of 6.9 weeks for students in the coop programs to a high of 9.9 weeks for students in the work study programs. Neither the difference in sample means between the cooperative and regular vocational students (8.7 vs. 6.9 weeks), nor the difference between the work study and general academic students was significant at the .05 level. The median duration of an unemployment spell during the junior year for these 124 students was only 5 weeks, and only 15 of the students or 12.1% of those unemployed were long-term unemployed, i.e., encountered a duration of unemployment of 15 weeks or longer.

The unemployment durations of the students in our sample appear to be in close conformity with the durations of unemployment experienced by young male workers (16-19) in the American labor force during similar time periods. Evidence from the CPS household surveys indicated that unemployment durations of young male workers (16-19) generally remain below those for all males (16+) despite the fact that the unemployment rate of young males is a substantial multiple of the overall male unemployment rate. For example, during 1970 the mean duration of unemployment among males (16-19) was 6.7 weeks in comparison to a mean duration of unemployment of 9.5 weeks for all males.[1]

On the basis of our findings on the employment and unemployment experiences of the students during the junior year of high school, a set of "unemployment rates" for the students in each of the four high school program categories can be calculated. These unemployment rates have been derived on the basis of employment and unemployment flows of students during a given year. The unemployment rate for each group has been calculated on the basis of the following formula:

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[1] U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1971, "Table A-13: Unemployed Persons by Duration, Sex, Age, Color, and Marital Status," p. 124, and "Table A-1: Employment Status of the Noninstitutional Population by Sex, Age, and Color," p. 115.

$$\text{Unemployment Rate} = \frac{N_i (X) \overline{S} (X) \overline{D}}{N (X) \overline{L}}$$

Where N_i = The number of students in a high school program category who encountered at leastone period of unemployment during the year

$\overline{S}$ = The mean number of spells of unemployment among those students unemployed during the year

N = The total number of students in the high school program category

$\overline{L}$ = The mean number of weeks in the labor force of the students in the high school program category during the year.

The numerator of the above ratio consists of the total number of weeks of unemployment experienced by students in a given program category during the entire year. The denominator represents the total number of weeks during the year in which the students in the program participated in the labor force. Thus, the ratio itself represents the proportion of total weeks in the labor force during which the students were unemployed. Although the unemployment rate is based on flow rather than stock concepts, its interpretation is quite similar to that of the traditional unemployment measure employed by the BLS.[1]

The unemployment rates prevailing among students in the four high school program categories during the junior year ranged from a low of 6.1% for the cooperative vocational program to 10.1% for the regular vocational program, a difference not statistically significant at the .05 level.[2] The weighted unemployment rate for the entire group of 427 students during the junior year was 8.1%. This rate compares favorably with the unemployment rate of 8.4% encountered by males (16-17) enrolled in school in the area during March 1970.[3]

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[1] For a similar analysis of unemployment rate behavior, see: (i) Barrett, Nancy S. and Morgenstern, Richard, "Why Do Blacks and Women Have High Unemployment Rates?" Journal of Human Resources, Fall 1974, pp. 452-464; (ii) Smith, Ralph E. and Holt, Charles C., "A Job Search-Turnover Analysis of the Black-White Unemployment Ratio," Proceedings of the Twenty-Third Annual Winter Meeting, Industrial Relations Research Association, Madison, 1971, pp. 76-86.

[2] The Z-statistics for the test of differences between sample proportions had a value of 1.12, which is significant only at the 13% level of significance utilizing a one-tailed test. As a result, one cannot reject the null hypothesis of equality between the two sample proportions.

[3] U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, PC(1)-D23, "Table 166. Employment Status and Hours Worked of Persons 14 to 34 years old, by School Enrollment, Age, Race, and Sex: 1970," pp. 743-751. The unemployment rate among males 16 years old and enrolled in school was 10.1% while the unemployment rate among males 17 years old was 7.1%.

During the senior year of high school 146 of the 381 students for whom information was available encountered at least one period of unemployment. The proportion of students in each program category with one or more spells of unemployment varied from a low of 31.0% for general academic students to a high of 46.2% among students in the work study programs. The difference in sample proportions between the general academic and work study students was significant at the .05 level. Cooperative vocational students were slightly more likely to experience a period of unemployment during the senior year than regular vocational students but the difference is not statistically significant at the .05 level.

Among the 146 students who were unemployed during the senior year, 109 or 74.7% experienced only one period of unemployment, 36 or 24.7% experienced two spells of unemployment, and one student became unemployed three different times during the year. Among those students who were unemployed, cooperative vocational students were more likely to experience multiple spells of unemployment than regular vocational students (28.9% vs. 11.8%) and work study students were more likely to have multiple unemployment spells than general academic students (36.4% vs. 22.6%). Neither of the observed differences in sample proportions was statistically significant at the .05 level.

The mean duration of a spell of unemployment encountered by students during the senior year ranged from 6.1 weeks for students in the work study programs to 9.2 weeks for general academic students. The difference in sample means between these two groups of students was significant at the .10 level. The cooperative vocational students who were unemployed during the senior year experienced a mean duration of unemployment of 6.3 weeks per spell, which was 2.3 weeks less than the mean duration of unemployment of students in the regular vocational programs. The difference in sample means between these two groups of students was not statistically significant at the .10 level.

The median duration of an unemployment spell encountered by students during the senior year was only four weeks. Of the 146 students who were unemployed during this time period, only 18 or 12.3% encountered a duration of unemployment fifteen weeks in length or longer. The unemployment durations of the students in our sample were again quite similar to those prevailing among young males throughout the nation during 1972.

The data on total weeks of unemployment and total weeks in the labor force were combined to derive "unemployment rates" and the unemployment rate for the entire sample during the senior year was 9.4%. Students in the cooperative vocational programs achieved the lowest unemployment rate (8.1%) while students in the regular vocational training programs experienced the highest unemployment rate (10.1%). The observed difference was not statistically significant at the .05 level. Participants in the work study programs encountered a lower rate of unemployment during the senior year than general academic students (8.4% versus 9.7%); however, the difference was not statistically significant at the .05 level.

The previous comparisons of the mean durations of unemployment among students in the four program categories provided some support for the hypothesis that school job placement programs may be more effective in reducing the expected duration of a given spell of unemployment than in preventing a student from entering the ranks of the unemployed during the high school year.

Unemployment of Students in Vocational Training Programs

During the junior year of high school, the mean number of weeks of unemployment per student in the four trade categories varied from a low of .85 weeks in the auto-related trades to a high of 3.35 weeks in the electrical-related trades.[1] The difference in sampling means between the auto and electrical trades students was significant at the .05 level.[2] This particular result is not surprising given the seasonal nature of employment in construction-related trades, such as electrical work, and the sharp employment decline in the electrical machinery industry which occurred in the area between 1970 and 1971.

During the senior year the mean number of weeks of unemployment in each of the four major trade areas increased, with students in the carpentry trades encountering the sharpest rise from 1.95 weeks to 4.73 weeks. Students in the auto trades again achieved the lowest mean weeks of unemployment (1.97 weeks) while the students in the carpentry-related trades had the highest mean (4.73 weeks). The difference in sample means between the auto and carpentry-related trades is significant at the .10 level. None of the remaining differences were statistically significant at this level.

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[1] The means were derived by dividing the total weeks of unemployment by all students in the program. Since several students in each program did not participate in the labor force during one of these two high school years, the mean calculated on the basis of only those students participating in the labor force would have been slightly higher.

[2] A one-tailed test of the difference between sampling means was utilized since the alternative hypothesis was that $\overline{X}$ auto should be less than $\overline{X}$ electrical given the greater seasonal and cyclical sensitivity of employment in the industries employing students in the electrical trade programs.

During the junior year of high school, the unemployment ratios of students in the cooperative carpentry, electrical and metal trades were lower than those encountered by their vocational counterparts by 4.8 percent, 4.0 percent, and 1.7 percent respectively. None of these observed differences were, however, statistically significant at the .10 level. Students in the cooperative auto trades experienced a higher unemployment ratio than those students in the regular auto trades during the junior year, 3.0 percent vs. 1.7 percent. This difference also was not statistically significant at the .10 level. See Table 4-24.

During the senior year of high school, students in the cooperative auto, carpentry, and electrical programs incurred higher unemployment ratios than their regular vocational counterparts by 5.9 percent, 4.4 percent, and .2 percent respectively. None of these observed differences in sample proportions proved to be significant at the .10 level. On the other hand, students in the cooperative metal trades achieved an unemployment ratio during the senior year that was substantially below that of students in the regular metal trade programs, 4.5 percent vs. 15.4 percent. The difference in the sample proportions between these two groups was significant at the .05 level.[1]

A review of the evidence on the unemployment experiences of students in selected cooperative and regular vocational trade programs during the junior and senior years of high school does not yield any substantial support (with the exception of students in the metal trades programs during their senior year) for the hypothesis that the cooperative vocational school programs would succeed in reducing the relative unemployment rates of participants during the high school years. The previous findings on the employment and unemployment experiences of students in cooperative and regular vocational training programs revealed that cooperative vocational students were more likely to encounter more than one spell of unemployment. Their general failure to achieve lower overall rates of unemployment relative to their regular vocational counterparts may be attributed to their higher number of job changes, including a higher proportion of involuntary changes due to their over-representation in cyclically sensitive industries. This resulted in more numerous spells of unemployment, but spells which were of relatively short durations.

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[1] The Z-Statistic was 1.65, which is significant at exactly the .05 level, utilizing a one-tailed test. The alternative hypothesis was that the proportion of weeks unemployed among participants in the cooperative metal programs would be lower than the proportion of prevailing among students in the regular metal trades.

One might hypothesize that students who are more confident in finding another job, due in part to the availability of school placement assistance, may be more prone either to leave one job to search for another or to accept employment in an industry, such as construction or durable manufacturing, known to have a greater susceptibility to higher unemployment. In this sense, the failure of students to achieve significantly lower unemployment rates may be the cost of achieving a wider exposure to jobs and more frequent employment opportunities in the construction and manufacturing sectors of the local economy. Thus, one should not automatically conclude on the basis of the evidence on unemployment rates alone that the cooperative vocational programs were failing to achieve a placement performance superior to those of the regular vocational programs since other goals may have been achieved at the expense of a higher unemployment rate.

Table 4-1: Proportion of Time Spent in Labor Force by Juniors and Seniors Combined, by School Program

Program	Mean Proportion of Time in Labor Force	Range	Standard Deviation
Cooperative Vocational (N=114)	68.2	0 to 100.0	28.5
Regular Vocational (N=89)	65.6	0 to 100.0	31.2
Work Study (N=77)	81.9	8.7 to 100.0	23.4
(a) Specialized Central City Work Study (N=19)	97.7	76.0 to 100.0	6.9
(b) All Other Work Study (N=57)	77.0	8.7 to 100.0	24.8
General Academic (N=100)	65.0	0 to 100.0	34.9
TOTAL (N=380)	69.5	0 to 100.0	30.6

Table 4-2: Proportion of Time Spent in Labor Force by Juniors and Seniors Combined, by Trade Program and Cooperative vs. Regular Vocational Status

Trade Program	Mean Labor Force Activity Rate	Range	Standard Deviation
Auto Related (N=34)	72.0	8.7 to 100.0	28.3
Auto, Coop (N=18)	70.2	8.7 to 100.0	27.8
Auto, Regular (N=16)	73.8	12.5 to 100.0	29.5
Carpentry Related (N=38)	61.5	5.8 to 100.0	31.9
Carpentry, Coop (N=17)	68.5	5.8 to 100.0	31.6
Carpentry, Regular (N=21)	56.1	8.7 to 100.0	31.8
Electrical and Electronics (N=47)	68.0	0.0 to 100.0	27.9
Electrical, Coop (N=25)	69.1	26.9 to 100.0	24.7
Electrical, Regular (N=22)	66.8	0.0 to 100.0	31.5
Machine and Metal (N=76)	67.4	0.0 to 100.0	30.7
Metal, Coop (N=52)	67.0	0.0 to 100.0	30.5
Metal, Regular (N=24)	68.2	0.0 to 100.0	31.9
Miscellaneous (N=8)	63.1	24.0 to 100.0	26.2

104

Table 4-3: Number of Weeks of Employment of Students During Junior and Senior Years, by High School Program (Standard Deviations are in Parentheses)

Employment Variable	Cooperative Vocational	Regular Vocational	Work Study	General Academic
Weeks of Employment, Junior Year	30.4 (19.5)	28.1 (20.8)	34.5 (19.6)	27.8 (20.8)
Weeks of Employment, Senior Year	36.7 (16.9)	32.6 (19.9)	42.7 (13.5)	32.8 (20.3)
Total Weeks of Employment, Junior and Senior Years Combined	65.9 (30.8)	61.5 (34.3)	78.8 (26.5)	62.0 (37.8)
Number of Observations Utilized in Calculating Means and Standard Deviations				
Junior Year	127	99	88	113
Senior Year	114	89	78	100
Junior and Senior Years Combined	114	89	78	100

NOTE: The number of weeks of employment on those jobs held by cooperative vocational students which were "coop" jobs, in that they were sponsored as part of the school program and involved full-time work every other week, were calculated in a different manner. Each week on a "coop" job was treated as two weeks of employment in which the average number of weekly hours were obtained by dividing the full-time hours by two.

Table 4-4: Mean Weeks of Employment During High School Years of Students in Vocational School Programs, by Trade Category (Standard Deviations are in Parentheses)

Trade	Weeks Employed During Junior Year	Weeks Employed During Senior Year	Total Week Employed, Junior and Senior Years Combined
Auto Trades	33.9	38.4	72.2
(N=39,34)	(20.4)	(17.1)	(30.1)
Carpentry Trades	24.7	32.0	57.4
(N=42,38)	(20.3)	(20.2)	(34.9)
Electrical Trades	30.6	33.9	63.7
(N=52,47)	(19.4)	(17.9)	(31.5)
Metal Trades	29.8	36.5	65.1
(N=83,76)	(20.1)	(17.9)	(32.4)

NOTE: Number of observations for junior and senior year employment variables do differ as the result of an inability to follow-up all students successfully. The two figures reported below each trade category refer to the number of observations for the junior and senior year variables.

Table 4-5: Mean Weeks of Employment During High School Years of Students in Cooperative and Regular Vocational Programs, by Trade Category (Standard Deviations are in Parentheses)

Trade	Weeks Employed During Junior Year	Weeks Employed During Senior Year	Weeks Employed Junior and Senior Years Combined
Auto, Coop (N=20,17)	37.1 (17.4)	35.0 (16.8)	69.3 (29.2)
Auto, Regular (N=19,17)	30.6 (23.2)	41.8 (17.1)	75.2 (31.6)
Carpentry, Coop (N=19,17)	26.2 (22.5)	35.1 (19.5)	63.6 (34.9)
Carpentry, Regular (N=23,21)	23.4 (18.7)	29.5 (20.8)	52.6 (35.0)
Electrical, Coop (N=25,24)	31.7 (17.0)	35.3 (15.7)	65.6 (28.1)
Electrical, Regular (N=27,23)	29.6 (21.6)	32.5 (20.1)	61.6 (35.4)
Metal, Coop (N=58,51)	28.8 (20.2)	39.3 (16.4)	66.1 (31.9)
Metal, Regular (N=25,25)	31.9 (19.9)	30.9 (19.7)	61.9 (29.5)

Table 4-6: Jobs Held by Cooperative Vocational Students that were "Coop" Positions During Junior and Senior Years

Year of School In Which Job was Held	Number of Students With Such a Job	Number of Jobs That Were "Coop" Positions	Percentage of Jobs That Were "Coop" Positions
(1) First Job During Junior Year	111	33	29.7
(2) Second Job During Junior Year	52	34	65.4
(3) Third Job During Junior Year	10	7	70.0
All Jobs During Junior Year	173	74	42.8
(1) First Job During Senior Year	124	65	52.4
(2) Second Job During Senior Year	78	61	78.2
(3) Third Job During Senior Year	32	26	81.4
All Jobs During Senior Year	234	152	65.0

NOTE: Some jobs held during the junior year were carried over into the senior year; thus, combining all jobs held during the junior and senior years would involve some double counting.

108

Table 4-7: Occupational Distribution of Jobs Held by Students During Junior Year, All Programs Combined

Occupational Group	First Job Held During Junior Year		Second Job Held During Junior Year		Third Job Held During Junior Year		All Jobs During Junior Year	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Professional and Technical and Managerial	1	0.3	2	1.6	0	0	3	0.6
Sales	14	3.9	3	2.3	0	0	17	3.3
Clerical	38	10.6	9	7.0	2	8.7	49	9.6
Craftsmen & Kindred	41	11.5	33	25.6	6	26.1	80	15.7
Operatives, except Transport	59	16.5	16	12.4	5	21.7	80	15.7
Transport Operatives	10	2.8	2	1.6	1	4.3	13	2.5
Laborers	106	29.6	38	29.5	3	13.0	147	28.8
Cleaning & Food Service	81	22.6	26	20.2	6	26.1	113	22.2
Other Service	8	2.3	0	0	0	0	8	1.6
TOTAL	358	100.0	129	100.0	23	100.0	510	100.0

Table 4-8: Distribution of Occupations of Jobs Held by Students During Junior Year, by Program Category

Occupational Group	Coop		Regular Vocational		Work Study		General Academic	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Professional, Technical, Managerial, and Sales	3	1.7	3	2.8	3	2.7	11	9.1
Clerical	6	3.5	5	4.7	18	16.4	20	16.5
Craftsmen & Kindred	59	34.1	10	9.4	6	5.5	5	4.1
Operatives, All	37	21.4	24	22.6	19	17.3	13	10.7
Laborers	42	24.3	36	34.0	31	28.2	38	31.4
Service Occupations, All	26	15.0	28	26.4	33	30.0	34	28.1
TOTAL	173	100.0	106	100.0	110	100.0	121	100.0

Chi-Square = 81.60 with 15 D.F.

Sig. = .001

Table 4-9: Occupational Distribution of Jobs Held by Students During Senior Year, All Programs Combined

Occupational Group	First Job Held During Senior Year		Second Job Held During Senior Year		Third Job Held During Senior Year		All Jobs During Senior Year	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Professional, Technical, and Managerial	11	2.8	3	1.6	0	0	14	2.2
Sales	11	2.8	0	0	0	0	11	1.7
Clerical & Kindred	51	12.8	12	6.5	7	12.7	70	11.0
Craftsmen & Kindred	84	21.2	52	28.1	22	40.0	158	24.8
Operatives, except Transport	56	14.1	44	23.8	10	18.2	110	17.3
Laborers	94	23.7	41	22.2	6	10.9	141	22.1
Cleaning & Food Service	70	17.6	19	10.3	4	7.3	93	14.6
Other Service Occupations	14	3.6	4	2.2	4	7.3	22	3.5
TOTAL	397	100.0	185	100.0	55	100.0	637	100.0

Table 4-10: Occupational Distribution of Occupations of Jobs Held by Students During Senior Year, by Program Category

Occupational Group	Coop		Regular Vocational		Work Study		General Academic	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Professional, Technical, Managerial, and Sales	1	0.4	4	3.3	6	4.1	14	10.3
Clerical	5	2.2	9	7.3	31	20.9	25	18.4
Craftsmen & Kindred	113	49.1	23	18.7	13	8.8	9	6.6
Operatives, All	52	22.6	24	19.5	30	20.3	22	16.2
Laborers	42	18.3	31	25.2	34	23.0	34	25.0
Service Occupations, All	17	7.4	32	26.0	34	23.0	32	23.5
TOTAL	230		123		148		136	

Chi-Square = 155.39 with 15 D.F.

Sig. = .001

112

Table 4-11: Comparison of Occupational Distributions of Jobs Held During Junior and Senior Years, All Programs Combined (in Percentage)

Occupational Category	(1) Percent of All Jobs Held During Junior Year (N=510)	(2) Percent of All Jobs Held During Senior Year (N=637)	(3) Percent Change in Share Of All Jobs Held Between the Junior And Senior Year
Professional, Technical, and Managerial	.6	2.2	+1.6
Sales	3.3	1.7	-1.6
Clerical	9.6	11.0	+1.4
Craftsmen and Kindred	15.7	24.8	+9.1
Operatives, except Transport	15.7	17.3	+1.6
Transport Operatives	2.5	2.8	+ .3
Laborers	28.8	22.1	-6.7
Cleaning and Food Service	22.2	14.6	-7.6
Other Service Occupations	1.6	3.5	+1.9
TOTAL	100.0	100.0	--

Table 4-12: Occupational Distribution of Employed Males, (16-17, and (18-19), in the Boston SMSA: 1970

Occupational Category	(1) 16-17 Year Old Males Number	(1) 16-17 Year Old Males Percent	(2) 18-19 Year Old Males Number	(2) 18-19 Year Old Males Percent	(3) Change in Shares from Column (1) to Column (2)
Professional, Technical and Managerial	509	2.5	1958	7.9	+5.4
Sales	2212	10.7	1900	7.7	-3.0
Clerical	3032	14.7	4567	18.4	+3.7
Craftsmen and Foremen	1084	5.3	3174	12.8	+7.5
Operatives, All	3015	14.6	5107	20.6	+6.0
Laborers, including Farm	5381	26.1	3843	15.5	-10.6
Service Workers, including Private Household	5387	26.1	4271	17.1	- 9.0
TOTAL	20,620	100.0	24,820	100.0	--

Source: (1) U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, PC(1)-D23, "Table 174. Occupation of Employed Persons by Age, Race, and Sex: 1970," pp. 843-844.

Table 4-13: Industrial Distribution of Jobs Held During Junior Year, By Program Category

Industrial Group	Coop Vocational (N=173)		Regular Vocational (N=106)		Work Study (N=110)		General Academic (N=121)		Total (N=510)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Goods Producing Sector plus the Transportation and Utilities Sector	72	41.6	24	22.6	18	16.4	[illegible]	[illegible]	121	25.7
Wholesale and Retail Trade	60	34.7	49	46.2	47	42.7	71	[illegible]	127	44.5
Finance and Insurance, Services and Government	41	23.7	33	31.1	45	40.9	33	27.3	152	29.8

(1) $X^2 = 41.06$

(2) Degrees of Freedom = 6

(3) Significance = .001

Table 4-14: Industrial Distribution of Jobs Held During Senior Year by Program Category

Industry Group	Coop Vocational (N=230)		Regular Vocational (N=123)		Work Study (N=148)		General Academic (N=136)		Total (N=637)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Goods Producing Sector Plus Transportation and Utilities	145	63.0	34	27.6	35	23.6	23	16.9	237	37.2
Wholesale and Retail Trade	49	21.3	46	37.4	54	36.5	76	55.9	225	35.3
Finance and Insurance, Services, and Government	36	15.6	43	35.0	59	39.9	37	27.2	175	27.5

(1) $X^2 = 114.44$

(2) Degrees of Freedom = 6

(3) Significance = .001

Table 4-15: Changes in the Industrial Distribution of Jobs Held by Juniors and Seniors of High School by High School Program Category

Industry	Share of All Jobs Held During Junior Year (Percent)	Share of All Jobs Held During Senior Year (Percent)	(3) Change in Share of Jobs Col. (2) - Col. (1) (Percent)
Construction	4.9	9.3	+ 4.4
Manufacturing	18.2	25.0	+ 6.8
Transportation and Utilities	2.2	2.8	+ .6
Wholesale and Retail Trade	44.5	35.4	- 9.1
Finance, Insurance, and Real Estate	3.5	3.6	+ .1
Services and Government, All Levels	26.3	23.9	- 2.4

Table 4-16: Hourly Wages Earned by Students on Jobs Held During the Junior and Senior Years, by School Program Category (Standard Deviations in Parentheses)

Wage Variable	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic
Mean Weighted Hourly Wage During Junior Year	$2.01 (.41)	$2.12 (.54)	$2.08 (.37)	$2.12 (.56)
Mean Weighted Hourly Wage During Senior Year	$2.16 (.44)	$2.25 (.45)	$2.28 (.51)	$2.38 (.87)
Number of Observations on Mean Weighted Hourly Wages				
(i) Junior Year	111	81	77	89
(ii) Senior Year	111	79	77	88

Table 4-17: Hourly Wages During the Junior and Senior Years of Students in Vocational Training Programs, by Cooperative or Regular Vocational Status (Standard Deviations in Parentheses)

Trade	(1) Mean Weighted Hourly Wage During Junior Year	(2) Mean Weighted Hourly Wage During Senior Year
Auto, Coop (N=18,17)	$2.00 (.36)	$2.01 (.34)
Auto, Regular (N=15,16)	$2.23 (.54)	$2.24 (.34)
Carpentry, Coop (N=14,16)	$2.09 (.52)	$2.47 (.68)
Carpentry, Regular (N=18,19)	$2.08 (.51)	$2.29 (.52)
Electrical, Coop (N=24,24)	$1.91 (.28)	$1.98 (.21)
Electrical, Regular (N=23,21)	$2.10 (.72)	$2.26 (.56)
Metal, Coop (N=50,49)	$2.05 (.45)	$2.20 (.38)
Metal, Regular (N=22,21)	$2.08 (.35)	$2.25 (.33)

Table 4-18: Mean Weighted Number of Weekly Hours of Work on Jobs Held by Students During the Junior and Senior Years, by Program Category (Standard Deviations Are in Parentheses)

Hours Variable	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic
Mean Weighted Hours of Work During Junior Year	25.7 (8.1)	28.4 (10.1)	26.9 (8.4)	26.0 (9.1)
Mean Weighted Hours of Work During Senior Year	26.1 (7.6)	28.6 (8.6)	26.3 (8.5)	27.6 (10.1)

NOTE: Whenever a job held by a cooperative vocational student was truly a "coop" job, the number of weekly hours of work were divided by two since these jobs were only held every other week during the School Year.

122

Table 4-19: Mean Annual Gross Earnings of Students During Junior and Senior Years, by Program Category (Standard Deviations in Parentheses)

Variable	Cooperative Vocational	Regular Vocational	Work Study	General Academic
Mean Gross Income During Junior Year	\$1823 (1263)	\$1960 (1198)	\$2293 (1431)	\$1827 (1148)
Mean Gross Income During Senior Year	\$2142 (1247)	\$2254 (1382)	\$2653 (1403)	\$2217 (1466)
Number of Observations				
(i) Junior Year	111	81	77	88
(ii) Senior Year	111	78	77	87

Table 4-20: Mean Annual Gross Earnings During the Junior and Senior Years of High School of Students in Cooperative and Regular Vocational Programs, by Trade Category (Standard Deviations Appear in Parentheses).

Trade	Mean Level of Annual Earnings, Junior Year	Mean Level of Annual Earnings, Senior Year
Auto, Coop (N=18,18)	$2375 (1248)	$1855 (1245)
Auto, Regular (N=15,15)	$2319 (1242)	$2712 (1146)
Carpentry, Coop (N=16,14)	$2141 (1646)	$2327 (1789)
Carpentry, Regular (N=18,18)	$1531 (652)	$2270 (1614)
Electrical, Coop (N=24,24)	$1557 (986)	$1894 (1042)
Electrical, Regular (N=23,22)	$2124 (1515)	$2217 (1593)
Metal Coop (N=50,49)	$1725 (1272)	$2354 (1146)
Metal, Regular (N=22,21)	$2029 (1302)	$2034 (1084)

Table 4-21: Distribution of Students by Reasons for Terminating Jobs Held During Junior and Senior Years Combined, by High School

	HIGH SCHOOL PROGRAM				
Reasons for Quitting	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Voluntary	169 (69.5%)	112 (81.8%)	100 (75.2%)	137 (84.6%)	518 (76.7%)
Involuntary	74 (30.5%)	25 (18.2%)	33 (24.8%)	25 (15.4%)	157 (23.3%)
Totals	243	137	133	162	675

Chi-Square = 13.428 with 3 D.F.

Sig. = .01*

Table 4-22: Reasons for Voluntarily Terminating Jobs During Junior and Senior Years, by High School Program

Reason	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Wages or Fringes	18 (9.9%)	7 (5.8%)	10 (9.1%)	9 (6.3%)	44 (7.9%)
Type of Work, working conditions, relationships with co-workers	98 (54.1%)	54 (45.0%)	63 (57.3%)	65 (45.5%)	280 (50.5%)
Return to school, take a vacation, or spend more leisure time	55 (30.4%)	56 (46.7%)	25 (22.7%)	60 (42.0%)	196 (35.4%)
Other	10 (5.5%)	3 (2.5%)	12 (10.9%)	9 (6.3%)	34 (6.1%)
Total	181	120	110	143	554

X^2 = 20.803 D.F. = 9
Sig. = .02*

Table 4-23: Unemployment Among Students Enrolled in Vocational Training Programs During The Junior and Senior Years of High School, by Cooperative and Regular Vocational Trade Program

	(1) Mean Number of Weeks of Unemployment During Junior Year	(2) Total Weeks of Unemployment	(3) Unemployment as a Percent of Total Weeks in Labor Force, Junior Year	(4) Mean Number of Weeks of Unemployment During Senior Year	(5) Total Weeks of Unemployment	(6) Unemployment as a Percent of Total Weeks in Labor Force, Senior Year
Auto, Coop (N=20,17)	1.15 (2.11)	23	3.0%	3.06 (8.17)	52	8.0%
Auto, Regular (N=19,17)	.53 (2.06)	10	1.7%	.88 (2.34)	15	2.1%
Carpentry, Coop (N=19,17)	1.32 (3.22)	25	4.8%	6.24 (10.48)	106	15.1%
Carpentry, Regular (N=23,21)	2.48 (4.61)	57	9.6%	3.52 (5.83)	74	10.7%
Electrical, Coop (N=25,24)	2.68 (5.30)	67	7.8%	3.71 (5.68)	89	9.5%
Electrical, Regular (N=27,23)	3.96 (10.57)	107	11.8%	3.34 (6.95)	77	9.3%
Metal, Coop (N=58,51)	1.90 (6.78)	110	6.2%	1.86 (4.39)	95	4.5%
Metal, Regular (N=25,25)	2.72 (4.41)	68	7.9%	5.52 (8.48)	138	15.1%

Table 4-24: Unemployment Among Students in Vocational Training Programs, by Cooperative and Regular Vocational Trade Program

	(1) Mean Number of Weeks of Unemployment During Junior Year, All Students in Program	(2) Total Weeks of Unemployment	(3) Unemployment as a Percentage of Total Weeks in Labor Force, Junior Year	(4) Mean Number of Weeks of Unemployment During Senior Year, All Students in Program	(5) Total Weeks of Unemployment	(6) Unemployment as a Percentage of Total Weeks in Labor Force, Senior Year
Auto, Coop (N=20,17)	1.15 (2.11)	23	3.0%	3.06 (8.17)	52	8.0%
Auto, Regular (N=19,17)	.53 (2.06)	10	1.7%	.88 (2.34)	15	2.1%
Carpentry, Coop (N=19,17)	1.32 (3.22)	25	4.8%	6.24 (10.48)	106	15.1%
Carpentry, Regular (N=23,21)	2.48 (4.61)	57	9.6%	3.52 (5.83)	74	10.7%
Electrical, Coop (N=25,24)	2.68 (5.30)	67	7.8%	3.71 (5.68)	89	9.5%
Electrical, Regular (N=27,23)	3.96 (10.57)	107	11.8%	3.34 (6.95)	77	9.3%
Metal, Coop (N=58,51)	1.90 (6.78)	110	6.2%	1.86 (4.39)	95	4.5%
Metal, Regular (N=25,25)	2.72 (4.41)	68	7.9%	5.52 (8.48)	138	15.4%

Chapter V

THE JOBS HELD BY STUDENTS

The jobseeking methods by which students found jobs during the high school years are presented in Table 5-1.[1] The three most frequently cited methods by which the 962 individual jobs were found by students were friends or relatives (53.5 percent), school officials (27.5 percent) and walk-in techniques (17.7 percent). Newspaper advertisements and public employment agencies were of minor importance. In comparison to the findings on job-seeking methods of young males based upon a CPS National Survey conducted during January of 1973, the young workers in our sample were more dependent upon friends, relatives, and school officials as sources of information about available job opportunities.[2] In addition, these students were less likely to obtain their jobs through direct applications with employers.

The distribution of jobfinding methods varied sharply among students in the four high school program categories. As one might readily expect, jobs obtained by students in the cooperative vocational (47.9 percent) and work study programs (24.8 percent) were more likely to be acquired with the placement assistance of school officials than were the jobs of students in the regular vocational (10.1 percent) and general academic programs (12.3 percent). Friends and relatives were the source of information on 71.2 percent of the jobs held by regular vocational students and 58.1 percent of the positions obtained by general academic students. The school-related placement assistance was apparently a key factor in determining the ability of cooperative vocational students to obtain their above-average shares of jobs in the construction and manufacturing sectors of the local economy. The students who lacked access to a formalized school placement process and thus were required to seek work through their contacts with friends or through direct contacts with employers were more likely to obtain employment in the traditional, teenage-intensive sectors of the local economy, such as retail trade and private service sectors. Differences in the distributions of jobfinding methods among the four high school program categories are statistically significant at the .001 level.

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[1] Because of the large numbers of tables in this chapter, the tables will be run consecutively at the end of the chapter.

[2] See: U.S. Department of Labor, Bureau of Labor Statistics, Jobseeking Methods Used by American Workers, U.S. Government Printing Office, Washington, D.C., 1975, "Table C-1. Method by which current job was obtained: age, sex, and race, January 1973", p. 29; and U.S. Department of Labor, Manpower Report of the President: 1975, "Table A-27, Unemployed Jobseekers by Job Search Method Used, by Sex and Age: Annual Averages, 1970-1974", pp. 240-241.

Nearly four out of five students who reported that they obtained their job through the placement services of the school indicated that they would not have been able to find a job as easily on their own. Students in the cooperative vocational (83.2 percent) and regular vocational programs (88.9 percent) were more likely to claim that the assistance of the school placement services likely reduced the length of time required to find a job, but this difference was not statistically significant at the .05 level.

The most frequently cited reason for the ability of the school to facilitate the search for employment was the student's perceived lack of knowledge of job availability. Ninety of the 177 responses (50.8 percent) seem to indicate that the school's placement services successfully expanded the amount of labor market information possessed by the student, thus speeding up job placement. The perceived role of the school placement services, particularly among coop students, was that the sponsorship of the school increased the willingness of the firm to hire the student. More than fifty percent of the coop students cited the school's reputation with the employer as the factor responsible for their being assisted in their search for employment.

Among the students claiming they could have found a job as easily on their own, the two most frequently cited reasons for their perceived ability to do so were the willingness of the employer to hire people directly "off the street" (44.4 percent), and the student's own knowledge of the labor market (27.8 percent). General academic students were the most likely to express the view that school related placement did not facilitate their ability to obtain employment. The evidence from these responses indicates that certain school placement programs, particularly in the non-vocational areas, were essentially serving employers who were experiencing problems in recruiting labor through normal channels and thus were expanding outreach with the aid of school officials for jobs which unskilled, inexperienced workers were being hired.

Location of Jobs Held by Students

Of the 917 jobs for which commuting information was available, over one-third were located within a one mile radius of the homes of the students, and an additional 40 percent of these jobs were located between one and five miles of the student's home. Thus, nearly 80 percent of all jobs were located within a five-mile radius of the residences of students. See Table 5-2.

These findings can be compared to the commuting distances of young male workers (16-19) interviewed during the 1973 survey of jobseeking methods of American workers. That survey's results revealed that while 50.3 percent of young males travelled under five miles to their place of employment, only 34.0 percent of all males commuted a distance under five miles. Nearly 74 percent of young males were employed in firms located within ten miles of their residences.[1] The higher proportion of jobs held by students in our sample within five miles of their homes was likely influenced by both their relative lack of access to an auto and their general inability to work regular day shifts during the school year. This precluded the bulk of them (with the exception of coop students) from obtaining employment in manufacturing firms located in the outer suburban communities.

Students in the coop programs were more likely to commute longer distances to their jobs. Nearly 26 percent of the jobs held by coop students were located five or more miles from their homes in comparison to 16.3 percent, or less, by students in the other programs. The differences in the commuting distances of students are largely reflective of their above average shares of jobs in the construction and manufacturing sectors of the metropolitan economy, which were more likely to be located in outlying communities. The observed differences in the distributions of commuting distances among the four high school programs are significant at the .01 level.

Responses on the type of transportation mode utilized by the students were available for 939 different jobs. Public transportation (35.3 percent) and walking (30.8 percent) accounted for nearly two-thirds of the methods utilized by students in commuting to their jobs. See Table 5-3.

Students in cooperative vocational (37.2 percent) and regular vocational programs (35.0 percent) were more likely to commute to work in their own car or as a passenger in a car driven by another person. The work study and general academic students were more dependent upon public transportation (bus or subway) in commuting to their jobs. These differences in commuting methods are undoubtedly influenced by the industries in which the jobs were located. The higher proportions of jobs held in construction or manufacturing by the cooperative and regular vocational students, particularly in the outlying suburban communities, more frequently required the use of an automobile to commute to work. The differences in the distributions of transportation methods among students in the four high school program categories were significant at the .01 level.

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[1] U.S. Department of Labor, Bureau of Labor Statistics, Jobseeking Methods Used by American Workers, "Table 4-7. Distance of Current Job from Residence at time of Job Search: Age and Sex, January 1973", p. 53.

Reasons for Employment During High School

The most frequently cited reason for seeking employment (nearly 80 percent) was to obtain money from the job. This finding is quite consistent with previous views as to the primary motives underlying labor force behavior of young workers. The second most frequently cited reason was the boredom of students. Of the total number of responses, 13.5 percent were related to the lack of acceptable alternative activities; i.e., the view of students that there simply was "nothing else to do". The boredom factor was mentioned more frequently than "job experience or training" motives for seeking employment.

The detailed responses on reasons for employment during high school were collapsed into three general categories which appear in Table 5-4. For seeking employment during high school, coop students (19.6 percent) were substantially more likely to mention job experience or training motives for seeking work than voc ed students (5.3 percent), work study (7.1 percent), and general academic students (9.7 percent). The bulk of the responses provided by the regular vocational students (85.2 percent) and the general academic students (84.1 percent) were related to monetary factors. Work study students were most likely to cite other non-monetary and non-training factors, including a high proportion of responses mentioning the "requirements of the high school program". The observed differences in the distributions of responses are significant at the .001 level.

Most frequently mentioned as a reason for accepting specific job offers was the wage itself or the income stream from the job. Nearly 40 percent of the responses focused on either the ability of the job to generate a desired income or the attractiveness of the specific wage itself relative to other options. Another 29.5 percent of the responses cited the fact that there were no alternative employment opportunities; i.e., the job they accepted was the only one available to them at the time of the job offer. The opportunity to obtain on-the-job training or specific work experiences was the third most frequently cited response category (14.7 percent).

As shown on Table 5-5, students in the cooperative vocational programs were the most likely (24 percent) to cite training and job experience reasons for accepting specific job offers. Students in the regular vocational programs referred to a lack of employment alternatives on 37.4 percent of the jobs they accepted, the highest response rate for this factor among the four high school programs. The responses of participants in the work study programs were more likely to fall in the "all other" category, including such reasons as school program requirements and an opportunity to reduce the amount of time spent in the classroom.

Training Received on Jobs

Of the 957 individual jobs for which responses were available, only 537 or 56.1 percent provided any type of training to the student during his period of employment. The jobs acquired by students in the cooperative vocational training programs (63.1 percent) and the work study programs (59.6 percent) were more likely to contain some type of training component than the jobs obtained by regular vocational (47.8 percent) and general academic students (50.9 percent). The observed differences in the distribution of responses to the training provision question were significant at the .01 level. See Table 5-6.

Those students who claimed that they received some form of training from the employer were asked to describe briefly the contents and duration of the training. See Table 5-7. More than three-fourths of the responses (75.8 percent) fell into the short-term, on-the-job, training category; i.e., for a period ranging from one day to several weeks. Longer-term training (one month or longer) was provided on only 115, or 21.7 percent, of the subset of all jobs held by students during the high school years. Finally, classroom training was provided on only 13 or 2.5 percent of these jobs. These responses indicate quite strongly that the vast majority of the jobs obtained by students during the high school years provide little, if any, training to the jobholder.

Students in the cooperative vocational training programs were more likely to obtain employment positions which provided a longer-term, on-the-job training component. Nearly one-third of the jobs with a training component held by coop students provided longer-term, on-the-job training in comparison to only 18.0 percent, or less, by students in the other programs. The differences in the distributions of types of training provided to students in the four high school program categories are significant at the .001 level.

A number of observers of the youth labor market in the U.S. and the manpower problems encountered by young workers have argued that their inability to obtain employment opportunities with a solid training component is due in part to the existence of federal and state minimum wage laws.

If this were applicable to the youth labor market in the area, then one might well hypothesize that the likelihood of a student obtaining training on a particular job would be a function of the entry-level wage rate that he is willing to accept from the employer. The findings indicate that the likelihood of receiving some form of training while employed was directly related to the beginning hourly wage. Of those jobs paying more than $2.00 per hour, 59.6 percent provided some type of training while only 52.0 percent of the jobs paying an initial wage of $1.60 or less per hour contained some type of a training component. The observed differences in the distributions of responses to the training question were not however significant at the .10 level. Thus, those jobs paying wages equal to or lower than the federal minimum were not more likely to provide any type of training to a student than higher-paying jobs.

One might well hypothesize that the likelihood of a particular job providing a training opportunity is dependent upon the occupational area in which it appears, and the data (see Table 5-8) reveal this to be so. Of the 950 different jobs for which responses by occupation were available, 534 or 56.2 percent did provide some form of training to the student jobholder. Those jobs in the crafts-related occupational areas were most likely to contain a training component.[1] Nearly three-fourths of the jobs in the crafts-related occupations (73.8 percent) included a training component while only 49.8 percent, 46.4 percent, and 34.8 percent of the jobs in the laborer, service, and transport equipment operatives occupational categories did so. The distributions of the responses among the eight occupational categories were significantly different at the .001 level.

The 534 jobs which included some form of training to the students were further analyzed to determine whether they provided short-term or longer-term OJT. Of these jobs, only 113 or 21.2 percent provided longer-term OJT to the students who held these positions. The crafts-related occupations (33.3 percent) and the operatives occupations (37.3 percent) were the most likely to provide longer-term OJT to the students. Those students holding jobs in the laborer (13.1 percent) and service occupations (6.9 percent) were among those least likely to receive OJT lasting one month or longer in duration from the employer. Only 11 of the 85 clerical jobs with some training component (or 12.9 percent) yielded a longer-term training opportunity. The differences in the distribution of types of training among the six major occupational categories were significant at the .001 level.

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[1] The crafts-related occupations include the censes occupational codes 401 through 579. Students whose jobs involved performing tasks in a crafts related occupation, such as an auto mechanic's helper or an electrician's helper, were coded in the 401-579 census occupational categories even though they were not formal apprentices in these trades.

These findings revealed that the blue-collar craftsmen and operative positions combined had the highest probabilities of providing solid on-the-job training opportunities for the students during their high school years. The hypothesis that the willingness to accept a lower hourly wage would improve one's ability to obtain on-the-job training from an employer was re-tested for those jobs in the blue-collar craftsmen and operative occupational categories, exclusive of transport equipment operatives. The results of this analysis support the null hypothesis that the provision of training and the beginning hourly wage rate were not related.

For each job containing a training component, the students were requested to assess whether or not the training that they received was related to the course work in their high school program. Of the 537 jobs for which responses were available, 280 or 52.1 percent provided on-the-job training which the students claimed was related to some portion of their high school curriculum. The proportion of jobs that contained a school-related training component varied quite sharply among the students in the four high school programs. Nearly 78 percent of the jobs with a training component that were held by cooperative vocational students did provide training that was school-related while only 32.3 percent and 36.0 percent of the jobs held by work study and general academic students provided training that was related to their high school curriculum. The differences in the distributions of responses among the four high school programs were significant at the .001 level.

In addition to the opportunities provided by employment during the high school years for students to obtain skills, educators and economists have also emphasized the role of such employment experience in providing youth with appropriate work habits, including attendance, punctuality, discipline, and an ability to work with other employees. Of the 902 jobs for which responses were provided by the students, 648, or 71.8 percent, did apparently provide the students with information on expected job behavior. Students in the regular vocational (75.4 percent) and general academic programs (74.4 percent) were more likely to give affirmative replies than students in either the coop (70.3 percent) or work study programs (68.1 percent). These differences may be due in part to the fact that the courses and staff of the coop and work study programs typically provided information to students on appropriate work behavior before being placed on jobs.

The differences in the distributions of responses among the four high school programs were not significant at the .10 level.

Students' Assessment of Jobs

During the in-school interview, the students were asked to provide their own personal assessments of the jobs that they had held throughout high school. Responses were available for 965 individual jobs held during their high school years. Favorable responses were given by the students on 579 or 60.0 percent, of these jobs, unfavorable responses were provided for 258, or 26.7 percent, of the jobs, and mixed feelings were expressed about the remaining 128 jobs. The jobs held by participants in the regular vocational (63.3 percent) and general academic programs (60.4 percent) were more likely to be given a favorable rating than those obtained by students in the coop (59.4 percent) and work study programs (56.7 percent). The observed differences in the distributions of responses among students in the four high school programs are not however significant at the .10 level.

The most frequently cited reasons for favorably rating jobs (see Table 5-9) were their relationships with fellow workers and job site supervisors (38.2 percent), the type of work they performed (30.5 percent), and the lack of difficulty or pressure from supervisors in performing the work (25.2 percent). Only 11.3 percent of the jobs were given a favorable rating due to the job experience or training that it provided the student. Coop vocational students were more likely to cite the employment experience or training aspects of the jobs they obtained; however, only one-sixth of the jobs rated favorably by coop students were given these high marks for their training components. The overall impression provided by the findings is that students place major emphasis on the working environment they encounter while employed, with a key role played by their co-workers and the conditions under which their work assignments are supervised.

The three major types of criticisms voiced by the students involved poor working conditions and unfavorable working hours (32.3 percent); poor relationships with fellow workers and job site supervisors (28.3 percent); and the boring nature of the job which provided few real responsibilities for the student (28.3 percent). Very few of the complaints registered by students were directed at the lack of training opportunities provided by the job (12.4 percent) or the wages and fringe benefits associated with their employment (16.2 percent). See Table 5-10.

Responses of students on the value of their job experiences were available for 912 different jobs. The students claimed that 474, or 52.0 percent, of these jobs did provide them an opportunity to learn job skills or work behavior that they considered as valuable; an additional 431 jobs (47.3 percent) did not teach them anything that they considered "valuable". Students in the cooperative vocational programs were more likely to claim that the jobs they held (60.1 percent) were providing them opportunities to acquire skills or learn appropriate job behavior that would prove to be valuable to them in the future. Only 47 percent of the jobs held by work study and general academic students were providing similar valuable skills or work behavior. The differences in the distributions of the students' responses among the four high school programs were significant at the .02 level.

The specific responses of students as to the "valuable" features of the jobs they held during high school are outlined in Table 5-11. Nearly 47 percent of these jobs were considered by the students as "valuable" since they provided job skills that would be useful in performing work on jobs they expected to obtain in the future. The bulk of the responses of the coop students (65.5 percent) fell into this category. Approximately one-third of these jobs (34.9 percent) were rated as "valuable" by students since they taught job skills that were in value either in terms of personal usefulness or as a "fall back" option in future years; i.e., they provided a skill that would not be directly related to their primary occupational objective, but could be used to obtain a job if their "first choice" in jobs did not get achieved. The remaining 122 responses cited the value of the job in providing students with knowledge of work rules, appropriate job behavior, and cooperation with fellow employees.

Eighty-four of the 156 responses as to why particular jobs did not possess valuable features cited the "dead end" nature of their jobs which essentially offered no skills training or opportunities for internal promotion. The participants in the work study programs who voiced dissatisfaction with their jobs in terms of their overall value generally registered complaints about their "dead end" nature (71.0 percent). The second most frequently mentioned criticism focused on the lack of any direct relationship between the job and the future vocational plans of the student. This factor was cited by students on 46, or 31.1 percent, of the jobs for which responses were available.

Those students who stated that their high school employment experiences did exert some influence on their occupational goals were requested to comment on the type of influence their jobs had. Responses were available for 532 different jobs. Only 217, or 41.8 percent, of these jobs had a positive influence upon the occupational goals of students, in the sense that their work experiences provided them with information as to the type of work they would like to perform in the future. Jobs held by students in the coop (53.1 percent) and regular vocational training programs (41.1 percent) were more likely to contribute in a positive manner to the occupational goal selection process than the jobs held by participants in the work study (34.2 percent) and general academic programs (29.5 percent). The general failure of the jobs obtained by students in the non-vocational programs either to provide any skills training at all or to provide training that was directly related to their school program curriculum was primarily responsible for their degree of positive influence upon the formation of career goals. The distributions of responses among the students in the four high school programs were significantly different at the .001 level.

Information on reasons for termination was available for 670 different jobs held by students during the high school years prior to the initial high school interview. The most frequently cited reason for terminating from employment was withdrawal by the student from the labor force in order to return to school, take a vacation, or participate in extra-curricular activities in the school, particularly athletics. Withdrawals accounted for 28.4 percent of the total number of job terminations. Layoffs were responsible for an additional 154 terminations, or 23.0 percent of the total. Approximately 16 percent of the terminations occurred either to move to a "better" job or to search for a "better" job. Voluntary quits by the students due to dissatisfaction with the overall job, its wage, working conditions, or relationships with co-workers and supervisors accounted for 25.2 percent of the terminations. Finally, 47, or 7.0 percent, of the jobs were terminated as the result of the student being fired by the company.

The termination responses were collapsed into three general categories: voluntary quits accounted for 469, or 70.0 percent; layoffs were responsible for 23.0 percent; and discharges for the remaining 7.0 percent. See Table 5-12. The distributions of termination reasons varied significantly (.001 level) among the students in the four high school programs. Jobs held by cooperative vocational students (31.0 percent) were more likely to be terminated as a result of a layoff by the firm while participants in the work study programs were more likely to be fired by their employer (13.8 percent).

The higher proportion of jobs terminated by cooperative vocational students as a consequence of layoffs is primarily attributable to their over-representation in such cyclically and/or seasonally sensitive industries, such as construction and durable manufacturing. The rising unemployment rate in the area during the students' junior and senior years of high school could be readily expected to reduce employment stability in the durable manufacturing and construction industries.

Searching for a Job

This section of the study is devoted to a description and analysis of the job search behavior of students during those periods of time during the high school years in which they were unemployed.[1] An analysis of the responses of the students should shed some light on the validity of the views expressed by various economists and other social scientists that a major portion of youth unemployment and underemployment is voluntary in nature[2] resulting from either an unwillingness to accept employment in low wage, low status occupation,[3] or from "unreasonable" wage expectations.[4]

Those students who stated that they had encountered at least one period of unemployment during high school were requested to describe the type of work that they had been seeking during their period of search. A total of 231 responses were provided by 215 different students, and the bulk of the responses fell into the category of "any type of job". This response was given by 62.8 percent of the students encountering at least one period of unemployment. The second most frequently occurring response was that of "a job related to high school trade", mentioned by 18.1 percent of the total number of unemployed students and more than 30 percent of the unemployed students in the cooperative and regular vocational training programs. While students in both the cooperative and regular vocational programs were more likely to be confining their search to trade-related occupations, more than two-thirds of the unemployed students in these high school programs were willing to accept jobs unrelated to their specific high school trade.

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[1] The information presented in this section is not strictly comparable with the data on the unemployment experiences of students in the previous chapter. Some of the unemployment experiences of students that are being described in this section occurred prior to the junior year of high school, and those unemployment spells that occurred after the initial high school interview are excluded from this analysis.

[2] See: Feldstein, Martin, Lowering the Permanent Rate of Unemployment, pp. 32-50.

[3] See: Gans, Herbert T., "Income Grants and 'Dirty Work'", The Public Interest, Winter 1967, pp. 110-113.

[4] See: Gavett, Thomas W., "Youth Unemployment and Minimum Wages: An Overview", Proceedings of the Twenty-Third Annual Winter Meeting of the Industrial Relations Research Association, Madison, 1971, pp. 106-116.

Each of the students who experienced a period of unemployment was asked whether or not he had received and rejected any specific job offers from employers during his spell of unemployment. See Table 5-13. During the 221 different spells of unemployment for which responses were available, the students claimed that they had received and declined a job offer from an employer on 49 different occasions, accounting for 22.2 percent of the total number of spells. In other words, approximately one-fifth of the students who were unemployed for one or more spells during their high school years had rejected employment offers from employers during their period of job search. In fact, that proportion itself is slightly biased upward as a measure of the extent to which students chose to remain voluntarily unemployed since several job offers were declined due to the fact that a more favorable employment offer was accepted at the same time that this job offer was turned down by the student.

Student jobseekers in the work study (28.3 percent) and regular vocational training programs (27.6 percent) were more likely to turn down job offers received from employers during their search for employment. The observed differences in the distributions of responses among the four high school programs are not significant at the .01 level.

The reasons cited by the students for turning down job offers from employers were available for 46 different job offers, and a total of 51 reasons were reported. The primary reason cited was the hours and/or location of the company. Eighteen of the forty-six job offers (or 39.1 percent) turned down by the students involved the unfavorable working hours or the location of the firm, low wages were responsible for nine of the job offers being turned down (19.6 percent), and the type of work offered by the employer was accountable for an additional eight offers (17.4 percent) being declined by the student.

Those students who had encountered one or more spells of unemployment during the senior year of high school (beginning on June 1, 1971) were asked to report their hourly "reservation" wage; i.e., the hourly wage rate below which they would have declined to accept an offer of employment.

The mean of the distribution of "reservation" wages of unemployed jobseekers was \$2.03 with a standard deviation of \$.39 per hour. The "reservation" wages ranged from \$1.60 to \$4.00 per hour with a median of \$2.00 per hour. The mean reservation wage of these student jobseekers does not appear to be "unrealistic" when compared to either the hourly wages being earned by their employed peers during this time period or to the hourly wages that the jobseekers themselves had been earning when they terminated their most recent job. The mean reservation wage of $2.03 per hour was $.20 below the mean hourly wage of $2.23 earned by students on either the job they were holding at the time of the initial high school interview or the final wage on the job they had most recently held. The difference between these two sample means of $.20 per hour was statistically significant at the .01 level. In addition, the mean reservation wage was $.14 below the final hourly wage earned by the jobseekers themselves on their most recent job. The difference between these two sample means was significant at the .05 level.[1] The findings reveal that the unemployed job seekers determined their reservation wages in a quite reasonable manner that reflected not only knowledge of "going wages" for youth in the local labor market but also a willingness on the part of many jobseekers to accept employment that did not offer a beginning wage equivalent to the wage they had been earning on their most recent job.

Of the 75 students for whom responses were available, 58, or 77.3 percent, were willing to accept a job that paid $2.00, and only 5 jobseekers (6.7 percent) were seeking an hourly wage of $2.50 or above. Student jobseekers in the cooperative (33.4 percent) and regular vocational training programs (27.3 percent) were more likely to be seeking a wage above $2.00 per hour than students in either the work study (13.4 percent) or general academic programs (7.1 percent). See Table 5-14.

Those students who were unemployed at the time of the initial in-school interview were requested to estimate their minimum wage demand upon graduation from high school. Thirty-six responses were obtained, and the mean post-high school reservation wage of these thirty-six unemployed students was $2.51 per hour with a standard deviation of $.64. The distribution of reservation wages varied from a minimum of $1.60 to a maximum of $4.75, and the median reservation wage was $2.50 per hour. The mean minimum acceptable hourly wage of these students upon graduation from high school substantially exceeded their mean reservation wage during the senior year of high school - $2.50 vs. $1.98 per hour. The difference of $.53 between these two sample means was significant at the .001 level.

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[1] The "t" test was conducted on a one-tailed basis; i.e., the alternative hypothesis was that the mean reservation wage would be less than the mean previous hourly wage of the jobseekers. On the basis of a two-tailed test, the difference in sample means would only have been significant at the .01 level.

The evidence on the differences between in-school and post-high school reservation wages is in accord with the view that youth behavior undergoes a sharp transformation once the young worker leaves high school. Graduation tends to lead to movement out of the so-called "youth" labor market into the "career" labor market, and the higher wage expectations of students upon graduation may simply be a reflection of their knowledge of the higher hourly wages prevailing on entry-level jobs in the "career" labor market.

The distribution of post-high school reservation wages by high school program category is contained in Table 5-15. Only one-third of the respondents expressed a willingness to accept a job upon graduation from high school that paid a wage of $2.00. Approximately 36 percent of the respondents stated that their minimum acceptable hourly wage would be above $2.50 per hour. The responses from the students in the cooperative vocational programs indicated a greater willingness to accept jobs paying $2.50 or less per hour (71.4 percent); however, the total number of responses was too small to conduct a contingency table analysis to determine whether the differences in the distributions of responses were significantly different. The greater number of jobs held per student in the cooperative vocational programs plus their greater exposure to jobs in the "career" labor market, particularly construction and manufacturing, may well have provided them with a greater degree of knowledge of wages offered on entry-level positions in the metropolitan labor market.

Students' Job Search Knowledge and Techniques

Four hundred responses were available on the question regarding knowledge of job search behavior. Two hundred and sixty students, or 65.0 percent, claimed that they had learned how to look for a job. Students in the work study programs (82.7 percent) and cooperative vocational programs (65.8 percent were more likely to claim knowledge of appropriate job search behavior. The high rate of positive responses among the participants in the work study programs is very likely due to the fact that such programs normally offer courses to the students in proper job behavior, including how to fill out job applications and take job interviews. The differences in the distributions of responses among the four high school programs were significant at the .001 level.

Those students who responded that they had learned how to look for work were asked to list those aspects of job search behavior about which they had gained knowledge. The bulk of the responses of the students mentioned either knowledge of how to conduct themselves during an interview (56.8 percent); how to dress for an interview with a prospective employer (41.9 percent); or how to fill out employment application forms (9.8 percent). Only 16.2 percent of the students cited an awareness of where to look for employment in the local economy. Students in the cooperative vocational programs (30.0 percent) were substantially more likely to claim knowledge of where to look for jobs, particularly in comparison to students in work study programs (5.5 percent) and general academic programs (10.7 percent). These findings indicate the need for a more effective labor market information dissemination role to be played by the schools. The fact that only 38 out of 400 students (9.5 percent) admitted that they possessed knowledge of where to look for employment, calls seriously into question the effectiveness of the existing vocational guidance system in the schools. Existing courses on job behavior apparently need to expand considerably upon the volume of information on the demand side of the labor market that is currently being made available to students. If public policy is to be effective in smoothing the transition of students from school to the world of work upon graduation, students should be provided with an appropriate amount of labor market information to enable them to develop their occupational goals on a more informed basis.

Table 5-1: Source of Information on Jobs Found During High School Years, by High School Program Category (multiple responses allowed for), N=962

Source of Information	High School Program Coop Vocational	Regular Vocational	Work Study	General Academic	Total
Friends or relatives	121 (39.2%)	148 (71.2%)	106 (48.6%)	132 (58.1%)	515 (53.5%)
School officials, Total	148 (47.9%)	21 (10.1%)	58 (24.8%)	28 (12.3%)	265 (27.5%)
(i) Coop Program Director or School Placement Rep.	95 (30.4%)	1 (.5%)	3 (1.3%)	2 (.9%)	101 (10.5%)
(ii) Shop Teacher	4 (1.3%)	2 (1.0%)	0 (0%)	0 (0%)	6 (.6%)
Newspaper Ad	8 (2.6%)	7 (3.4%)	22 (9.4%)	9 (4.0%)	46 (4.8%)
Public Employment Agency or Social Service Agency	8 (2.6%)	9 (4.3%)	3 (1.3%)	11 (4.8%)	31 (3.2%)
Private Employment Agency	0 (0%)	0 (0%)	0 (0%)	2 (.9%)	2 (.2%)
Walk-in (Applied on own)	37 (12.0%)	32 (15.4%)	45 (19.2%)	56 (24.7%)	170 (17.7%)
Union	0 (0%)	2 (1.0%)	0 (0%)	1 (.4%)	3 (.3%)
All Other	2 (.6%)	2 (1.0%)	0 (0%)	1 (.4%)	5 (.5%)
Total Sources	324	224	234	243	1025
Total Jobs Obtained	309	208	218	227	962

(1) $X^{2*} = 146.897$
(2) Degrees of Freedom = 12
(3) Significance = .001

NOTE: Percentages in above table are based upon proportion of jobs obtained by this source, not upon proportion of all sources utilized in acquiring jobs by students in each program category.

* Chi-square value was derived after.

Table 5-2: Distance between Home of Student and Location of Firms Employed in During High School Years, by High School Program Category (N=917)

	High School Program				
Distance Between Home and Job Site	Coop Vocational	Regular Vocational	Work Study	General Academic	Total
.50 miles or less	74 (24.7%)	62 (31.5%)	55 (26.3%)	55 (25.9%)	246 (26.8%)
.51-1.00 miles	22 (7.4%)	22 (11.2%)	28 (13.4%)	20 (9.4%)	92 (9.2%)
1.01-5.00 miles	126 (42.1%)	81 (41.1%)	102 (48.8%)	89 (42.0%)	398 (43.4%)
5.01-10.00 miles	53 (17.7%)	22 (11.2%)	15 (7.2%)	25 (11.8%)	115 (12.5%)
10.01 miles +	24 (8.0%)	10 (5.1%)	9 (4.3%)	23 (10.8%)	66 (7.2%)
TOTAL	299	197	209	212	917

Table 5-3: Method of Transportation to Work on Jobs Held During High School Years, by High School Program Category (N=939)

Method of Transportation	High School Program Coop Vocational	 Regular Vocational	 Work Study	 General Academic	Total
Drove own car	15 (5.0%)	14 (6.8%)	8 (3.7%)	6 (2.8%)	43 (4.6%)
Rider in Car Driven by Other Person	97 (32.2%)	58 (28.2%)	54 (25.1%)	52 (24.0%)	261 (27.8%)
Bus, Subway	101 (33.6%)	61 (29.6%)	76 (35.3%)	95 (43.8%)	333 (35.5%)
Walk	85 (28.2%)	66 (32.0%)	76 (35.3%)	62 (28.6%)	289 (30.8%)
Other	3 (1.0%)	7 (3.4%)	1 (.5%)	2 (.9%)	13 (1.4%)
Total	301	206	215	217	939

(1) $X^{2*} = 15.167$
(2) Degrees of Freedom = 9
(3) Significance = .09

*NOTE: X^2 value was calculated after combining other category with walk category due both to small number of observations in other category and to fact that other responses usually involved a combination of transport methods including walking.

Table 5-4: Reasons for Deciding to Become Employed During High School Years, by Program Category (N=954) (Multiple Responses Allowed)

General Category of Reasons For Seeking Employment	High School Program Category				
	Coop Vocational	Regular Vocational	Work Study	General Academic	Total
Obtain Job experience and/or Training	60 (19.6%)	11 (5.3%)	15 (7.1%)	22 (9.7%)	108 (11.3%)
Money From Job	227 (74.2%)	178 (85.2%)	165 (77.8%)	191 (84.1%)	761 (79.8%)
All Other Non-Training and Non-Monetary Reasons	87 (28.4%)	52 (24.9%)	103 (48.6%)	63 (27.8%)	305 (32.0%)
Total Reasons	374	241	283	276	1174
Total Jobs Surveyed	306	209	212	227	954

(1) $X^{2*} = 53.392$
(2) Degrees of Freedom = 6
(3) Significance = .001*

NOTE: Percentages appearing in above table are based upon the proportion of the three-longest jobs held by students during high school, not upon the proportion of all responses given by students as to why they sought work during the high school years.

Table 5-5: Reasons for Accepting Specific Job Offers During High School Years, by Program Category (N=943)

General Categories of Reasons for Accepting Jobs	High School Program (1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Training Opportunity, Gain Experience	73 (24.1%)	19 (9.2%)	22 (10.5%)	25 (11.2%)	139 (14.7%)
Needed Money; Good Wages	105 (34.7%)	79 (38.3%)	85 (40.5%)	100 (44.6%)	369 (39.1%)
Only Job Available	81 (26.7%)	77 (37.4%)	53 (25.2%)	67 (29.9%)	278 (29.5%)
All Other Reasons	128 (42.2%)	101 (49.0%)	124 (59.0%)	100 (44.6%)	453 (48.0%)
Total Reasons	387	276	284	292	1239
Number of Jobs Accepted	303	206	210	224	943

(1) $X^2 = 42.381$
(2) Degrees of Freedom = 9
(3) Significance = .001*

NOTE: Percentages in above table are based upon proportion of all jobs giving that response, not upon the proportion of all responses given for accepting jobs in each program category.

Table 5-6: Students' Views as to Whether Jobs Provided Any Training, by High School Program Category (N=957)

Any Training Provided on Job	High School Program Category				TOTAL
	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	
Yes	193 (63.1%)	100 (47.8%)	130 (59.6%)	114 (50.9%)	537 (56.1%)
No	113 (36.9%)	109 (52.2%)	88 (40.4%)	110 (49.1%)	420 (43.9%)
Total Number of Jobs	306	209	218	224	957

(1) $X^2 = 14.419$
(2) Degrees of Freedom = 3
(3) Significance = .01

Table 5-7: Type of Training Received by Students on Jobs Held During High School, by High School Program Category (N=530)

Type of Training Received	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
	High School Program Category				
Short-term OJT Training (Simply Shown What To Do)	123 (65.4%)	79 (79.0%)	111 (86.0%)	89 (78.8%)	402 (75.8%)
Longer-Term Training OJT (Actual Skills Taught)	62 (33.0%)	18 (18.0%)	17 (13.2%)	18 (15.9%)	115 (21.7%)
Classroom Training	3 (1.6%)	3 (3.0%)	1 (.8%)	6 (5.3%)	13 (2.5%)
Total Number of Jobs	188	100	129	113	530

(1) X^2 = 18.061
(2) Degrees of Freedom* = 3
(3) Significance = .001*

*NOTE: The X^2 - statistic was calculated after combining the long-term OJT category with the classroom training category.

150

Table 5-8: Responses of Students as to Whether or Not Their High School Jobs Provided Some Form of Training, by Occupational Area of Job (N=950)

Occupational Category	Did Job Provide Training?		
	(1) Yes	(2) No	(3) Total
Professional, Technical, and Managerial	11 (52.4%)	10 (47.6%)	21 (2.2%)
Sales	16 (55.2%)	13 (44.8%)	29 (3.1%)
Clerical	85 (65.4%)	45 (34.6%)	130 (13.7%)
Craftsmen-Related	138 (73.8%)	49 (26.2%)	187 (19.7%)
Operatives, Except Transport	67 (53.6%)	58 (46.4%)	125 (13.2%)
Transport Equipment Operatives	8 (34.8%)	15 (65.2%)	23 (2.4%)
Laborers	107 (49.8%)	108 (50.2%)	215 (22.6%)
Service Workers	102 (46.4%)	118 (53.6%)	220 (23.2%)
Total	534 (56.2%)	416 (43.8%)	950

(1) X^2 = 32.348

(2) Degrees of Freedom = 7

(3) Significance = .001

Table 5-9: Students' Reasons for Favorably Rating Jobs, by High School Program Category (N=620) (Multiple Responses Allowed)

Reasons for Liking Jobs	High School Program Category				
	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Acadamic	Total
Getting Good Job Experience or Training	32 (17.2%)	10 (7.1%)	14 (10.6%)	14 (8.7%)	70 (11.3%)
Type of Work	55 (29.6%)	51 (36.2%)	40 (30.3%)	43 (26.7%)	189 (30.5%)
Wages or Fringe Benefits	29 (15.6%)	20 (14.2%)	16 (12.1%)	18 (11.2%)	83 (13.4%)
General Working Conditions, Hours, or Company Location	37 (19.9%)	19 (13.5%)	25 (18.9%)	27 (16.8%)	108 (17.4%)
Easy Job; No Pressure from Supervisor	53 (28.5%)	31 (22.0%)	37 (28.0%)	35 (21.7%)	156 (25.2%)
Variety of Tasks, Freedom to Work on Own, Responsibility	21 (11.3%)	22 (15.6%)	25 (18.9%)	24 (14.9%)	92 (14.8%)
Fellow Workers and Supervisors	67 (36.0%)	49 (34.8%)	54 (40.9%)	67 (41.6%)	237 (38.2%)
All Other	4 (2.2%)	3 (2.1%)	5 (3.8%)	5 (3.1%)	17 (2.7%)
Total Reasons	298	205	216	233	942
Total Number of Jobs	186	141	132	161	620

Table 5-10: Students' Reasons for Unfavorably Rating Jobs by High School Program Category (Multiple Responses Allowed For), (N=371)

	High School Program Category				
Reasons for Disliking Jobs	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Getting Little or No Experience or Training	12 (10.3%)	14 (18.7%)	10 (11.0%)	10 (11.4%)	46 (12.4%)
Type of Work	19 (16.2%)	15 (20.0%)	19 (20.9%)	23 (26.1%)	76 (20.5%)
Low Wages and Lack of Benefits	18 (15.4%)	16 (21.3%)	14 (15.4%)	12 (13.6%)	60 (16.2%)
Poor Working Conditions, bad hours, bad location	31 (26.5%)	33 (44.0%)	27 (29.7%)	29 (33.0%)	120 (32.3%)
Hard Job; Pressure from Supervisor	16 (13.7%)	26 (34.7%)	15 (16.5%)	25 (28.4%)	82 (22.1%)
Boring Job; No Freedom or Responsibility	42 (35.9%)	15 (20.0%)	28 (30.8%)	20 (22.7%)	105 (28.3%)
Fellow Workers and Supervisors	29 (24.8%)	18 (24.0%)	31 (34.1%)	27 (30.7%)	105 (28.3%)
All Other	3 (2.6%)	0 (0%)	1 (1.1%)	0 (0%)	4 (1.1%)
Total Reasons	170	137	145	146	598
Total Jobs for Which Responses Were Given	117	75	91	88	371

NOTE: Percentages appearing in table above are based upon the proportion of jobs giving that particular response, not upon the proportion of all reasons given for disliking jobs by students in each program category.

Table 5-11: Students' Assessments as to What of Value Job Taught Them, by High School Program Category (N = 450) (Multiple Responses Allowed)

What of Value Did Job Teach?	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Learning Job Skills for Future Job Use	101 (69.7%)	35 (36.1%)	38 (36.5%)	37 (35.6%)	211 (46.9%)
Learning Job Skills for Personal Use Or to "Fall Back On"	41 (28.3%)	39 (40.2%)	44 (42.3%)	33 (31.7%)	157 (34.9%)
Learning Work Rules and Job Discipline	4 (2.8%)	15 (15.5%)	19 (18.3%)	9 (8.7%)	47 (10.4%)
Learning How to Work with other People	8	11	17	39	75
Total Responses	154	100	118	118	490
Total Jobs	145	97	104	104	450

*NOTE: Percentages in above table are based upon proportion of jobs giving that particular response, not upon the proportion of all responses given by students in each program category.

Table 5-12: Reasons for Terminating Jobs Held During High School, By High School Program Category (N=670)

General Reasons for Termination	High School Program Category (1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Laid off; temporary job	66 (31.0%)	32 (20.1%)	27 (19.6%)	29 (18.1%)	154 (23.0%)
Fired	15 (7.0%)	7 (4.4%)	19 (13.8%)	6 (3.8%)	47 (7.0%)
Quit Voluntarily	132 (62.0%)	120 (75.5%)	92 (66.7%)	125 (78.1%)	469 (70.0%)
Total Number of Jobs Terminated	213	159	138	160	670

(1) $X^2 = 23.138$
(2) Degrees of Freedom = 6
(3) Significance = .001

Table 5-13: Number of Students Receiving and Rejecting Job Offers During Periods of Unemployment in High School, By High School Program Category (N=221)

Did Student Receive and Reject Any Job Offers?	High School Program (1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
yes	9 (14.8%)	16 (27.6%)	13 (28.3%)	11 (19.6%)	49 (22.2%)
no	52 (85.2%)	42 (72.4%)	33 (71.7%)	45 (80.4%)	172 (77.8%)
Total	61	58	46	56	221

(1) $X^2 = 2.947$
(2) Degrees of Freedom = 3
(3) Significance = .41

156

Table 5-14: Minimum Wage Demands of Students Looking for Work During Senior Year, by High School Program Category (N=75)

Minimum Wage Demand	High School Program (1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
$1.60-$1.80	4 (16.7%)	8 (36.4%)	5 (33.3%)	5 (35.7%)	22 (29.3%)
$1.81-$2.00	12 (50.0%)	8 (36.4%)	8 (53.3%)	8 (57.1%)	36 (48.0%)
$2.01-$2.50	7 (29.2%)	4 (18.2%)	1 (6.7%)	0	12 (16.0%)
$2.51 +	1 (4.2%)	2 (9.1%)	1 (6.7%)	1 (7.1%)	5 (6.7%)
Total	24	22	15	14	75

Table 5-15: Minimum Wage Demands of Students Upon Graduation from High School (Responses Confined to Those Looking for Work At Time of Initial High School Interview), by High School Program Category, (N=36)

Minimum Wage Demand	High School Program				
	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
$2.00 or less	5 (35.7%)	4 (30.8%)	2 (40.0%)	1 (25.0%)	12 (33.3%)
$2.01-2.50	5 (35.7%)	4 (30.5%)	1 (20.0%)	1 (25.0%)	11 (30.6%)
$2.51-3.00	3 (21.4%)	3 (23.1%)	2 (40.0%)	2 (50.0%)	10 (27.8%)
$2.01 +	1 (7.1%)	2 (15.4%)	0	0	3 (8.3%)
Total	14	13	5	4	36

Chapter VI

POST-HIGH SCHOOL PLANS OF STUDENTS

This chapter will present a summary of the post-high school plans of students as revealed by them during the initial interview.[1] Information will be presented on the occupations and industries in which the students expected or hoped to be employed following graduation from high school. In addition, the students were also asked to outline their career goals over the following five years, and the responses to these questions are presented both in the aggregate and by individual high school program category.

Table 6-1[2] contains the responses of students to the question referring to their immediate post-high school plans. A total of 546 responses were provided since a number of students cited two post-high school plans, such as, obtaining a job and also attending school in the evening. One hundred and forty-nine of the responses (36.4 percent of the students) mentioned school attendance, approximately evenly divided between colleges and technical or trade schools. The vast majority of the students (307 or 75.0 percent) mentioned employment as their immediate post-high school objective. Approximately 53 percent of the students claiming employment as their immediate goal upon graduation stated that the job they planned to obtain would be related to their high school program in some manner.

There were some substantial differences in the distributions of responses among the students in the four high school program categories. The responses of coop students were less likely to refer to school attendance (20.0 percent) and substantially more likely to cite employment as an immediate goal (87.2 percent), particularly trade-related employment (72.0 percent). The responses of voc ed students contained the highest proportion of technical or trade school attendance plans (20.6 percent) and an above-average share of employment plans (84.5 percent). The observed differences in the distributions of responses among the four high school programs were found to be significant at the .001 level.

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[1] The in-school interviews were conducted from mid-October to late April of the students' senior year of high school. One might well expect that those students who were interviewed in the last few months prior to graduation would be more certain of their immediate post-high school plans. Since the in-school interviews by high school program category were quite uniformly distributed over time, the comparisons of students' responses among the programs should not have been adversely affected by the differences in timing of individual interviews with the students.

[2] Because of the large numbers of tables in this chapter, the tables will be run consecutively at the end of the chapter.

Those students who responded that immediate employment upon graduation was their objective were asked whether they had obtained a definite job to fill upon their graduation from high school. (See Table 6-2.) Of the 317 students responding to the question, only 125 (or 39.4 percent) admitted that they had a definite job to fill upon graduation from high school, and an additional 21 students (6.6 percent) stated that they "may" have a job; i.e., not certain that the offer was definite.

The distributions of responses varied widely among the programs. Coop students (56.0 percent) and work study students (50.0 percent) were substantially more likely to have lined up a specific post-high school job than participants in the other two programs. The findings seem to indicate that the jobs obtained by students in cooperative vocational and non-vocational programs during the senior year of high school were either more stable or more satisfying to the program participants so that a high proportion of these students planned to retain these jobs upon graduation from high school.[1] The observed differences in the distributions of responses among the four high school programs are significant at the .001 level.

Table 6-3 provides information on the occupational titles of the jobs that those students with job offers or with tentative offers, intended to fill upon graduation from high school. Of the 145 jobs mentioned by the students, 39, or 26.8 percent, were in white collar occupations, consisting primarily of clerical and sales positions. Sixty-seven, or 46.2 percent, of the jobs were in the craftsmen occupations, and another 19, or 13.0 percent, were blue-collar operatives.

There were some sharp differences in the distributions of occupation-job titles among the students in the four high school programs. Only 3.1 percent of the occupations cited by the students in the cooperative vocational training programs were in the white collar field while 86.1 percent were in the blue-collar craftsmen and operatives occupations. The bulk of the jobs mentioned by these students were in the craftsmen group (72.3 percent), where a comparatively large proportion of coop students had had work experience and

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1. Of those students who claimed to have a specific job to fill upon graduation from high school, eighty-one percent claimed that they were presently working in such a firm. Cooperative vocational students (93.4 percent) and work study students (76.9 percent) were more likely to be currently working for the firm that would employ them upon graduation than participants in the regular vocational (60.0 percent) or general academic programs (72.7 percent).

where they had received comparatively more training than in any of the other occupational areas. The differences in the distributions of occupational job titles among the four high school program categories were significant at the .001 level. The findings on the occupational employment plans of these students immediately following graduation seem to indicate that the high school programs in which they were enrolled do funnel students into quite different segments of the local labor market.

The industries in which those students with job offers expected to be employed following graduation are presented in Table 6-4. Of the 146 jobs cited by the students, 70 (or 47.9 percent) were located in the construction, manufacturing, transportation, and utilities sectors of the metropolitan economy. The remaining 76 jobs were in the trade, finance and insurance, private services, and government sectors of the economy.

The distributions of industries in which the students expected to be employed upon graduation did vary substantially among the four high school programs. This particular finding is not surprising given both the sharp variations in the occupational distributions of these jobs as revealed in Table 6-3 and the types of firms in which those particular occupations are concentrated. Students in the cooperative vocational programs were substantially more likely to obtain employment in the construction industry (23.1 percent) or in manufacturing (49.2 percent) than students in each of the other three high school programs. These were the industries in which the coop students had had in-school work experience, and in which they had received comparatively more training than in other industries. The findings in Table 6-3 indicate that the industries in which students expected to become employed upon graduation differed to a statistically significant degree among the four high school program categories.

Students were also asked to list the source of information of the jobs they expected to hold. The findings reveal (See Table 6-5) that of the 145 jobs which the students expected to obtain upon graduation, parents, friends, and relatives were the source of information on 62, or 42.8 percent of the total. School officials, including placement officers, counselors, shop teachers, and academic instructors, provided the information to students on 66, or 45.5 percent of the total, and other sources of information, including newspaper ads and walk-ins, accounted for the remaining 17 jobs (11.7 percent).

The sources of information on these planned post-high school jobs varied rather widely among the students in the four high school program categories.

Of the 65 jobs which students in the cooperative vocational programs planned to hold after graduation, 46, or 70.8 percent, were obtained with the assistance of school officials. Only 15.8 percent of the jobs of regular vocational students were obtained through school placement assistance. Students in the work study programs (33.3 percent) were also more likely to obtain their post-high school jobs with the assistance of school officials than participants in the general academic programs (18.2 percent). The differences in the distributions of sources of job information among students in the four high school programs were significant at the .001 level.

The findings in Table 6-5 do appear to provide preliminary support for the hypothesis that cooperative school programs can improve the transition from school to work by providing students with in-school employment experiences that will lead to a smoother transition to the world of work upon graduation. Cooperative vocational students were substantially more likely than regular vocational students to have both obtained specific employment offers in the months prior to graduation and utilized school placement assistance in acquiring these jobs.

Those students who stated that their immediate objective upon graduation was employment, but who had not obtained a job offer as of the initial interview, were requested to describe the type of occupation they wished to obtain. Of the 181 responses provided by the students, (Table 6-6) 139 (76.8 percent) mentioned a specific occupational category, 10 (5.5 percent) referred to "any type of job", and 32 (17.7 percent) students stated that they simply did not know what kind of work they wished to perform upon graduation from high school. Of the 139 students who mentioned a specific occupation, 104 (or 74.8 percent) expressed a desire to obtain a craftsman-related position. The only other occupational category that received more than ten responses was that of service occupations, which accounted for 14, or 7.9 percent, of the total number of responses.

The responses of this group of students differed sharply by high school program. Students in both the cooperative (85.1 percent) and regular vocational training programs (79.7 percent) expressed an overwhelming desire to obtain employment in the craftsmen occupational categories, while only 16.0 percent and 20.0 percent of the students in the work study and general academic programs, respectively, cited the crafts occupations as their desired employment objective. Nearly one-fourth of the students in the work study programs and more than one-third of the general academic students could not define any specific occupational objective whatsoever. The findings in Table 6-3 and 6-6 indicate that during the senior year of high school the bulk of students in the cooperative and regular vocational programs either had obtained a specific job offer or were capable of at least defining their immediate post-high school employment objectives in terms of a specific occupational goal. On the other hand, a substantial proportion of students in the general academic programs either had no immediate plans for employment upon graduation or could not provide any specific information as to the type of work they desired to obtain upon graduation.

Of the 149 students responding to the question on placement assistance from school officials, 65 (or 43.6 percent) stated that either they did plan to request placement assistance from the school or that they were already receiving such placement help. (See Table 6-7.) Seventy-eight of the students (52.3 percent) asserted that they did not plan to request placement assistance from any school official, including classroom teachers and the remaining six students (4.0 percent) expressed uncertainty as to whether they would seek placement assistance from the school.

The distributions of responses in Table 6-7 do vary rather considerably by high school program category. Respondents in both the cooperative vocational (61.4 percent) and regular vocational training programs (62.3 percent) were substantially more likely than work study (4.8 percent) or general academic students (12.9 percent) to state that they either did plan to seek school placement assistance or were already receiving such assistance. The differences among high school programs in the willingness to utilize school placement assistance are primarily due to two factors: the abilities of the students to state a specific occupational goal and the student's perception of the school staff's ability to provide information on jobs in the desired occupational areas. Students in the cooperative and regular vocational programs were more likely to utilize school placement assistance since they frequently were seeking post-high school employment in a trade-related occupational area and generally perceived that the school did possess information on available job openings in trade-related occupations. On the other hand, students in the work study programs were less willing to rely upon the school staff for placement assistance since they often claimed that the school only had information on jobs in the traditional "youth" labor market, which they generally did not desire to obtain upon their graduation from high school.

Those students who asserted that they would seek placement assistance from the school were asked to describe the exact school official from whom they would request help in finding a post-high school job. Of the fifty-three students responding, 23 (or 43.4 percent) stated that they would seek placement assistance from the director of their cooperative vocational program or the placement representative of the vocational program in which they were enrolled. Nineteen of the respondents (35.8 percent) claimed that they would rely upon the assistance of the school guidance counselor in securing a post-high school job.

Each of the twenty-two respondents who expressed a willingness to utilize school placement assistance in obtaining post-high school employment stated that their request for such placement help was based upon their belief that school-related assistance made the job search process "easier". Their responses were not probed to discover more precisely what constituted an "easier" job search effort. Some of the students appeared to view school placement assistance as a supplement to their own job search efforts, while others viewed it as a substitute.

The fifty-four respondents who insisted that they would not seek job placement assistance from the school primarily declined to request such help either because other sources of job information were available to them (29.6 percent) or because they preferred to secure such employment through their own efforts (29.6 percent)

Attitudes Toward Union Membership

Those students who cited full-time employment as their immediate post-high school objective were questioned as to whether they intended to join a union upon becoming employed. Of the 247 responses provided by the students, 145 (or 58.7 percent) expressed a desire to join a union, 64 (or 25.9 percent) expressed an unwillingness to become enrolled in a trade union, and 38 (or 15.4 percent) of the students were uncertain as to their intentions. There did exist some differences in the distributions of responses among the students in the four high school programs. Respondents in both the cooperative vocational (66.3 percent) and regular vocational programs (62.2 percent) were more likely to express a desire to join a trade union than those respondents in either the work study (48.3 percent) or general academic programs (41.9 percent). The differences in the distributions of responses were only significant, however, at the .14 level.

The primary reasons mentioned by the students for desiring to enroll in a trade union were better wages and fringe benefits (40.7 percent), employment security (18.6 percent), and the working conditions in union shops, (12.2 percent) including protection from arbitrary treatment by the employer. In addition, 17.4 percent of these responses regarding intentions to join a union mentioned the requirement of union membership for continued employment in the firm or occupation.

Of the thirty-two respondents who reported that they did not intend to become a member of a trade union, twenty-six (or 81.3 percent) claimed that their primary reason was either the non-union status of the firm in which they expected to be employed or the general absence of a union in the occupational field in which they hoped to gain employment.

Five-Year Career Goals of Students

In addition to obtaining information on their immediate plans upon graduation from high school, the initial, in-school interview also included questions on the career goals of students five years after graduation.

The students' assessments of their career goals five years following graduation appear in Table 6-8. Of the 418 responses provided by the students, 45 (or 10.8 percent) mentioned employment in a professional or managerial occupation. The bulk of the responses cited employment in a skilled trade, primarily consisting of blue-collar craftsmen positions although also including several highly-skilled technical and clerical jobs, such as a computer operator. One hundred and sixty-one of the responses (38.5 percent) did mention employment in a skilled trade, including 117 which were related to the student's high school program.

The distributions of the responses among the students in the four high school programs varied sharply. Students in both the cooperative (60.8 percent) and regular vocational programs (54.6 percent) were substantially more likely to cite a skilled trade as their career goal than students in the other programs. Students in the work study and general academic programs more frequently cited employment goals in the professional and managerial occupations (10.7 percent and 19.6 percent, respectively) or in civil service positions (14.3 percent and 8.0 percent). The differences in the distributions of responses among the four high school programs are significant at the .001 level.

After stating their five-year career goals, the students were asked to express **their** views as to which portions of their high school programs, if any, would prove to be most useful in achieving their career objectives.

Their responses to this question are outlined in Table 6-9. Seventy-four (or 17.7 percent) of the students claimed that no part of their high school program would prove to be useful, and an additional 21 students (5.0 percent) stated that they were uncertain as to whether any portion of their high school program would prove to be useful. On the other hand, 54.9 percent of the students felt that their shop courses and related instruction would assist them in achieving their career goals, 31.2 percent insisted that their academic courses would prove useful, and 9.6 percent believed that their business courses would be helpful in obtaining their career objectives. Only 6.0 percent of the students mentioned their in-school work experiences as being of assistance in their career goal attainment.

Students in the cooperative and regular vocational programs were most likely to mention shop courses (52.8 percent and 46.4 percent, respectively) and related instruction courses (28.5 percent and 28.9 percent) as useful in achieving their career objectives. Students in the work study and general academic programs were more likely to refer to their academic courses (45.9 percent and 42.0 percent, respectively) and to their business courses (12.9 percent and 25.9 percent) as being useful in obtaining their longer-term career goals.

In addition to assessing the likely role of their high school program in achieving their career objectives, the students were also asked to express their views as to whether some type of further training would be required to obtain their career goals. Of the 423 students for whom responses were available, 332 (or 78.5 percent) stated that some type of further training would be required to obtain their career objectives. The students in the regular vocational programs (82.7 percent) were most likely to mention the need for additional training; however, the proportion of students in both the cooperative vocational (79.4 percent) and general academic programs (79.5 percent) who also expressed the need for further training was only 3.0 percent below that for the regular vocational student group. The observed differences in the distributions of responses among the four high school programs were not significant at the .10 level.

Those students who admitted the need for further training were asked to describe the type of additional training that they thought would be necessary to obtain their occupational goals. Of the 332 students responding to the question, 131 (or 39.5 percent) cited the need for on-the-job training, including 46 students who commented that their goal attainment would require participation in a formal apprenticeship program. Another 163 (or 49.2 percent) mentioned the need for additional classroom training, including enrollment in trade or technical schools. Eighty-eight students (26.6 percent) stated that their career goals would require some form of college training. (See Table 6-10.)

There did exist some substantial variations in the distributions of responses among the students in the four high school programs. The respondents in both the cooperative vocational (62.0 percent) and regular vocational programs (46.6 percent) were substantially more likely to cite the need for further on-the-job training and formal apprenticeship training than were the respondents from the other programs. This particular finding is not surprising given the high proportions of career goals held by the cooperative and regular vocational students that were related to employment in the more highly skilled blue-collar occupations. On the other hand, students in the work study (27.4 percent) and general academic programs (43.8 percent) were more likely to refer to the need for college training to achieve their occupational goals. The higher proportion of job goals for these students in the professional and managerial occupations is primarily responsible for their greater reliance upon four-year colleges and universities as training institutions to equip them with the skills or credentials to secure their desired occupational goal of high-level, white collar employment. The observed differences in the distributions of responses among the students in the four high school programs were significant at the .001 level.

Table 6-1: Post-High School Employment and Educational Plans of Students, by High School Program Category (Multiple Responses Allowed)

Post High-School Plans of Student	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Attend College[a]	5 (4.0%)	12 (12.4%)	14 (16.7%)	35 (33.7%)	66 (16.1%)
Attend Technical/Trade School	16 (12.8%)	20 (20.6%)	10 (11.9%)	19 (18.3%)	65 (15.9%)
Attend Other School[a]	4 (3.2%)	3 (3.1%)	4 (4.8%)	7 (6.7%)	18 (4.4%)
Military Service	28 (22.4%)	12 (12.4%)	18 (21.4%)	18 (17.3%)	76 (18.5%)
Obtain Employment Related to School Program	90 (72.0%)	49 (50.5%)	18 (21.4%)	6 (5.8%)	163 (39.8%)
Obtain Employment Not Related to School Program[b]	13 (10.4%)	21 (21.6%)	36 (11.9%)	36 (34.6%)	106 (25.9%)
Obtain Employment, Not-Sure if Related to School or Program[b]	6 (4.8%)	12 (12.4%)	5 (6.0%)	15 (14.4%)	38 (9.3%)
Out of Labor Force, Other Than School Attendance	5 (4.0%)	0 (0%)	4 (4.8%)	5 (4.8%)	14 (3.4%)
Total Responses	167	129	109	141	546
Total Number of Students Responding	125	97	84	104	410

(1) $x^2 = 128.755$ (2) Degrees of Freedom = 12 (3) Significance = .001

a - Combined for x^2 Computation
b - Combined for x^2 Computation

Table 6-2: Responses of Students as to Whether They Had a Specific Job to Fill Upon Graduation

Does Student have a Specific Job to Fill	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
yes	61 (56.0%)	16 (19.5)	30 (50.0%)	18 (27.3%)	125 (39.4%)
no	44 (40.4%)	62 (75.6%)	21 (35.0%)	44 (66.7%)	171 (53.9%)
uncertain	4 (3.7%)	4 (4.9%)	9 (15.0%)	4 (6.1%)	21 (6.6%)
Total	109 (34.4%)	82 (25.9%)	60 (18.9%)	66 (20.8%)	317

(1) $X^2 = 26.574$

(2) Degrees of Freedom = 3

(3) Significance = .001

NOTE: (1) The uncertain responses were combined with the no responses before calculating the X^2 statistic. Thus, there are only (4-1) (2-1) or 3 degrees of freedom.

Table 6-3: Occupational Titles of Planned Post High School Job, by High School Program Category

Occupational Title of Planned Post-High School Job	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Professional, Technical, Managerial	0	1 (5.0%)	2 (5.1%)	2 (9.5%)	5 (3.4%)
Clerical & Sales	2 (3.1%)	3 (15.0%)	17 (43.6%)	12 (57.1%)	34 (23.4%)
Craftsmen	47 (72.3%)	8 (40.0%)	9 (23.1%)	3 (14.3%)	67 (46.2%)
Operatives, except transport equipment	9 (13.8%)	2 (10.0%)	3 (7.7%)	0 (4.8%)	14 (9.6%)
Transport Equipment Operatives	1 (1.5%)	3 (15.0%)	1 (2.6%)	0	5 (3.4%)
Laborers, except Farm	6 (9.2%)	1 (5.0%)	3 (7.7%)	1 (4.8%)	11 (7.6%)
Service Workers	0	2 (10.0%)	4 (10.3%)	3 (14.3%)	9 (6.2%)
TOTAL	65 (44.8%)	20 (13.8%)	39 (26.9%)	21 (14.5%)	145

X^2 = 51.600
Degrees of Freedom = 9
Significance = .001

NOTE: Due to limited numbers of responses in particular occupations, several occupational categories had to be combined before the X^2 statistic was calculated. The following occupational categories were combined:

(i) Professional, technical, and managerial with clerical and sales;

(ii) Operatives and transport equipment operatives;

(iii) Laborers and service occupations.

Table 6-4: Industry of Planned Post-High School Job, by Program Category

Industry of Employment	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Construction	15 (23.1%)	2 (10.0%)	5 (12.8%)	1 (4.5%)	23 (15.7%)
Manufacturing	32 (49.2%)	4 (20.0%)	4 (10.2%)	1 (4.5%)	41 (28.1%)
Transportation	1 (1.5%)	1 (5.0%)	2 (5.1%)	0	4 (2.7%)
Utilities	0	0	0	2 (9.1%)	2 (1.4%)
Wholesale & Retail	8 (12.3%)	8 (40.0%)	8 (20.5%)	9 (40.9%)	33 (22.6%)
Finance, Insurance Real Estate	0	0	10 (25.6%)	0	10 (6.8%)
Services	9 (13.8%)	4 (20.0%)	9 (23.0%)	8 (36.4%)	30 (20.5%)
Government	0	1 (5.0%)	1 (2.6%)	1 (4.5%)	3 (2.0%)
TOTAL	65 (44.5%)	20 (13.7%)	39 (26.7%)	22 (15.1%)	146

X^2 = * 44.243

Degrees of Freedom = 9

Significance = .001

NOTE: Before calculating the X^2 statistic, a number of the industry categories had to be combined to generate a sufficient number of hypothetical frequencies.* The categories "transportation," "utilities," and "manufacturing" were combined as were "finance, insurance, real estate," "services," and "government." The X^2 test was thus based upon four industry groupings, resulting in nine degrees of freedom for the contingency table analysis.

Table 6-5: Responses of Students as to Sources of Information on Post-High School Jobs, by Program Category

Source of Information on Job	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Parent, friend, relative	11 (16.9%)	14 (73.7%)	23 (59.0%)	14 (63.6%)	62 (42.8%)
School Official, including shop or classroom teacher	46 (70.8%)	3 (15.8%)	13 (33.3%)	4 (18.2%)	66 (45.5%)
Other	8 (12.3%)	2 (10.5%)	3 (7.7%)	4 (18.2%)	17 (11.7%)
Total	65 (44.8%)	19 (13.1%)	39 (26.9%)	22 (15.2%)	145

$X^2 = 32.816$

Degrees of Freedom = 6

Significance = .001

Table 6-6: Occupational Category of Job Desired by Students Upon Graduation from High School*

	(1) Cooperative Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Professional, Technical, Managerial	0	0	1 (4.0%)	1 (2.2%)	2 (1.1%)
Clerical	0	0	3 (12.0%)	3 (4.4%)	6 (3.3%)
Sales	0	0	1 (4.0%)	0	1 (.6%)
Crafts	40 (85.1%)	51 (79.7%)	4 (16.0%)	9 (20.0%)	104 (58.4%)
Operative	1 (2.1%)	1 (1.6%)	0	1 (2.2%)	3 (1.7%)
Laborer	0	2 (3.1%)	5 (20.0%)	2 (4.4%)	9 (5.1%)
Service	0	1 (1.6%)	4 (16.0%)	9 (20.0%)	14 (7.9%)
Any Type of Job	3 (6.4%)	2 (3.1%)	1 (4.0%)	4 (8.9%)	10 (5.5%)
Don't know	3 (6.4%)	7 (10.9%)	6 (24.0%)	16 (35.5%)	32 (17.7%)
TOTAL	47 (26.0%)	64 (35.4%)	25 (13.8%)	45 (24.9%)	181

* A contingency table analysis of the distribution of responses was not carried out due to the limited numbers of observations in each cell.

Table 6-7: Responses of Student Jobseekers as to Whether They Planned to Seek Placement Assistance from School Officials

Did Student Plan to Seek Placement Assistance from School	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
yes, plans to ask	15 (34.1%)	23 (43.4%)	1 (4.8%)	1 (3.2%)	40 (26.8%)
yes, already receiving help	12 (27.3%)	10 (18.9%)	0	3 (9.7%)	25 (16.8%)
no, does not plan to ask	15 (34.1%)	18 (34.0%)	18 (85.7%)	27 (87.1%)	78 (52.3%)
Uncertain	2 (4.5%)	2 (3.8%)	2 (9.5%)	0	6 (4.0%)
TOTAL	44 (29.5%)	53 (35.6%)	21 (14.1%)	31 (20.8%)	149

X^2 = 33.209

Degrees of Freedom = 3

Significance = .001

NOTE: The four response categories appearing in the above table were collapsed into two overall response categories prior to calculating the X^2 statistic. The "yes, plans to ask" and "yes, already receiving help" responses were combined into one category as were the "No, does not plan to ask" and the "uncertain" response categories.

Table 6-8: Students' Assessments of Their Career Plans in Five Years Following Graduation by High School Program

Five Year Career Goal	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Professional and Managerial Occupation	6 (4.8%)	8 (8.2%)	9 (10.7%)	22 (19.6%)	45 (10.8%)
Skilled Trade-Related to High School Program	67 (53.6%)	48 (49.5%)	1 (3.6%)	1 (6.2%)	117 (28.0%)
Skilled Trade, Not Related to High School Program	9 (7.2%)	5 (5.1%)	14 (16.7%)	16 (14.3%)	44 (10.5%)
Low-Skilled Trades, Outside Civil Service	3 (2.4%)	2 (2.1%)	9 (10.7%)	11 (9.8%)	25 (6.0%)
Police, Fireman & Other Civil Service Positions	7 (5.6%)	6 (6.2%)	12 (14.3%)	9 (8.0%)	34 (8.1%)
School	3 (2.4%)	1 (1.0%)	3 (3.6%)	7 (6.2%)	14 (3.3%)
Military and Other	8 (6.4%)	3 (3.1%)	11 (13.1%)	10 (8.9%)	32 (7.7%)
Don't Know	22 (17.6%)	24 (24.7%)	25 (29.8%)	36 (32.1%)	107 (25.6%)
Total	125 (29.9%)	97 (23.2%)	84 (20.1%)	112 (26.8%)	418

X^2 = 133.961
Degrees of Freedom = 21
Significance = .001

Table 6-9: Students' Responses as to Which Portion of Their High School Will Be Most Useful in Achieving Career Program Goals, by High School Program (Multiple Responses Allowed)

Portion of High School Program	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
Academic Subjects	29 (23.6%)	15 (15.5%)	39 (45.9%)	47 (42.0%)	130 (31.2%)
All Portions of Trade Program Training	19 (15.4%)	23 (23.7%)	0	0	42 (10.1%)
Shop Course	65 (52.8%)	45 (46.4%)	07 (8.2%)	6 (5.4%)	122 (29.5%)
Related Instruction	35 (28.5%)	28 (28.9%)	0	1 (.9%)	64 (15.3%)
Work Experience in Trade Course	11 (8.9%)	0	0	0	11 (2.6%)
Business Course	0	0	11 (12.9%)	29 (25.9%)	40 (9.6%)
Work Experience -Business Course	0	0	0	4 (3.6%)	4 (1.0%)
Work Study Work Experience	0	0	10 (11.8%)	0	10 (2.4%)
Nothing	6 (4.9%)	13 (13.4%)	26 (30.6%)	29 (25.9%)	74 (17.7%)
Don't Know	1 (.8%)	4 (4.1%)	4 (4.7%)	12 (10.7%)	21 (5.0%)
Other	0	1 (1.0%)	3 (3.5%)	6 (5.4%)	10 (2.4%)
Total Responses	166	129	100	134	529
Total Number of Students Responding	123	97	85	112	417

NOTE: Percentages appearing in above table are based upon proportion of students providing that response rather than upon the proportion of all responses provided by students in each high school program.

Table 6-10: Students' Assessments of the Type of Further Training That is Needed to Obtain Career Goals, by High School Program Category (Multiple Responses Allowed)

Type of Training	(1) Coop Vocational	(2) Regular Vocational	(3) Work Study	(4) General Academic	TOTAL
OJT-Related to High School[a]	34 (34.0%)	15 (18.5%)	6 (9.7%)	2 (2.2%)	57 (17.2%)
OJT-Not Related to High School[a]	7 (7.0%)	3 (3.7%)	9 (14.5%)	9 (10.1%)	28 (8.4%)
Formal Apprenticeship[a]	21 (21.0%)	20 (24.6%)	2 (3.2%)	3 (3.4%)	46 (13.9%)
Classroom Skilled Training-Related to H.S.[b]	33 (33.0%)	24 (29.6%)	2 (3.2%)	2 (2.2%)	61 (18.4%)
Classroom Skilled Training-Not Related to H.S.[b]	2 (2.0%)	5 (6.2%)	13 (21.0%)	22 (24.7%)	42 (12.7%)
Other non-4 year colleges Institutional Training[b]	10 (10.0%)	10 (12.3%)	17 (27.4%)	23 (25.8%)	60 (18.1%)
Four-Year College Training Related to H.S.[c]	7 (7.0%)	5 (6.2%)	9 (14.5%)	23 (25.8%)	44 (13.3%)
Four-Year College Training-Not Related to H.S.[c]	9 (9.0%)	11 (13.6%)	8 (12.9%)	16 (18.0%)	44 (13.3%)
Military	5 (5.0%)	5 (6.2%)	9 (14.5%)	4 (4.4%)	23 (6.9%)
Don't Know	3 (3.0%)	3 (3.7%)	6 (9.7%)	8 (9.0%)	20 (6.0%)
Total Responses	131	101	81	112	425
Total Students Responding	100	81	62	89	332

(1) $x^2 = 48.577$ (2) **Degrees of Freedom = 9** (3) Significance = .001

a - Combined for x^2 Computation
b - Combined for x^2 Computation
c - Combined for x^2 Computation

Chapter VII

THE FIRST POST-HIGH SCHOOL JOB

This chapter contains four sections. The first discusses the length of time needed to find the first job, the methods used, and the reasons for selecting it. The second and third sections describe the economic and non-economic characteristics, respectively, of the initial job. The economic chacteristics include wages and weekly hours; the non-economic characteristics include the industries and occupations, sources of job satisfaction and dissatisfaction, and finally the reasons for leaving the job. The last section of the chapter examines the extent to which the first job was a source of training and work experience that added to the individual's stock of human capital.

Finding the First Job after High School

1. Length of Time Needed. The transition from school to work was not abrupt for many members of all four groups. It often meant continuing on a full-time or part-time job held while a student. The first post-high school job of a surprisingly high proportion of all groups was the same as the last one held while in high school. However, continuing on the same job seemed to hold for significantly higher proportions of both the coops (54.4 percent) and work study students (58.6 percent) than the voc ed and general academic students (44.0 percent in each case). Moreover, this transition job was almost always a full-time job for the coops, while it was less likely to be for members of the other groups.

In the case of the central city coops who constituted most of the group, remaining on the last job may have been the simplest way of meeting the requirement of a year of related work to receive a high school diploma. For the work study students there was no such obligation. Apparently the fact that in both programs working was in varying degrees a structured component of the curriculum may have made the difference. Compared to other curricula, the work study and coop programs either made it easier to begin the post-high school entry into the full-time adult labor market early or explicitly encouraged it. In contrast, work was not required of the general academic and voc ed students; the kinds of jobs they found as students, especially the academic students, were more likely to be in the adolescent labor market. The jobs available to the coops and in well-organized programs for work study students were likely to be adult jobs.

Although most of the carry-over coop jobs were related to the trades studied in high school, over half (53.1 percent) of the young men in them did not remain, the large majority (69.2 percent) leaving voluntarily. Thus 36.7 percent of all the coop students in carry-over-related trade jobs quit them. One measure of the ease of transition into the full-time labor force is remaining with an employer one had as a high school senior. By this measure coop programs were not the most successful. Nonetheless, the better case might be that coop provided the chance to have an early introduction to adult employment.

In view of the importance of carry-over jobs, a large majority of all four groups (at least 70.0 percent) found their first post-high school job in less than a week, the coops no quicker than any of the others. As Table 7-1 shows,[1] the average number of weeks of unemployment before finding this first job was short for all programs, again no fewer for the coops than for the others.

2. Source of the First Job. For all graduates combined, the bulk of the initial jobs after high school were obtained from three sources: (1) friends and relatives (47.2 percent); (2) schools (25.1 percent); and (3) direct application (17.7 percent). The same three sources were the principal ones for graduates of each program except the general academics, for whom the school was almost inconsequential. However, the relative importance of these three prominent sources differed markedly for each group.

The sharpest inter-program difference was how their members found this first job. The school was highly important only for graduates of coop and work study programs, the only ones in which employment was a formal requirement of the curriculum, job placement an explicit responsibility of the school, or both. The school ranked first for the coops (43.5 percent) and second for the work study (31.8 percent). Not all of the jobs the coops found through the school came from coop administrators or teachers, but most did (78.8 percent).

For the vocational education students and of course for the general academic students, the role of personal contacts far surpassed the schools. Friends and relatives accounted for 53.7 percent of the first voc ed jobs and 57.6 percent of the general academic. For the voc ed graduates direct application was somewhat more important than the school (19.4 percent vs. 17.2 percent); for the general academic graduates direct application was much more important (21.7 percent vs. 6.5 percent). The school and personal contacts appear to be substitutes here. Where the school is not much used, friends and relatives tend to take up much of the slack.

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[1] Because of the large numbers of tables in this chapter, the tables will be run consecutively at the end of the chapter.

The voc ed graduate and the general academic relied on their own devices, primarily informal ones; the coops and work study graduate had another alternative, which they used extensively, the high school. (One surprise was the inconsequential role of shop teachers, who were responsible for just 2.8 percent of the coops' first post-high school jobs and 3.2 percent of regular vocational students' jobs.) Shop instructors, we were repeatedly assured, had contacts in their trades or industries, and informally on their own placed many students.

A sharp contrast can be drawn between the sources used by the graduate of the two programs providing much the same occupational skills, the coop and the regular vocational. Working in the trade related job was an integral part of the coop curriculum but not the regular vocational. The school was the single most important source for the coop graduates followed fairly closely by personal contacts. In contrast, the single most important source for the voc ed students were friends and relatives, trailed by direct application and schools. See Table 7-2. A number of other patterns stand out: the slight use by all groups of the State Employment Service, community agencies, guidance counselors, and newspaper advertisements.

3. Reasons for Taking the First Post-High School Job. These reasons fall into two broad categories, non-job related and job related, and better than half the reasons (56.5 percent) given by the entire sample[1] were of the first kind. The job related reasons constituted only 41.1 percent of all the reasons given by the sample members, and almost the same proportion was given by graduates of each program except the work study (half of their reasons were job related).

There was a remarkable similarity among the four groups in the broad categories of reasons given for taking the first post-high school job. Over half of the coops, voc ed and general academic graduates, and exactly half of the work study graduates had seen it as the only alternative or out of felt financial need. The dominant pattern was one of limited choice for at least half the members of all four groups. Differences by program were trivial, except possibly in the case of the work study.[2] See Table 7-3.

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[1] Answers were obtained from 328 individuals.

[2] Moreover, the work study graduates were more likely than the others to have taken a job only because their school program required it (26.8 percent of their non-job related answers were this sort compared to 12.7 percent of the coops, none of the voc eds, and 4.6 percent of the general academics).

The special interest of the coops in an initial job which offers training or related work experience becomes more apparent (and exaggerated) if the job associated reasons are isolated. See Table 7-4. Then 39.6 percent of the coop reasons for taking the first job was for the training or experience, about triple the proportion of the other groups. These differences are reduced but not eliminated even when the kind of work is added. This combined category constitutes 50.9 percent of all the coop job-related reasons, 42.5 percent of the regular vocational, 41.0 percent of the work study, and 31.3 percent of the general academic.

Another difference among programs in job-related reasons was the greater importance of non-wage aspects to the former general academic and work study students than the former coops. There was one feature common to all programs: in no case was the amount of pay important. It was less than 10 percent of all the reasons given by each group, and roughly 20 percent of their job-related reasons.

4. Relationship to the Trade Studied in High School. As expected the first post-high school job of the coops was much more likely to be associated with their high school program than that of any of the others, including the voc ed graduates, who offer the most apt comparison. Again, the prevalence of jobs carried over from high school and the central city requirement of a year's work in a related trade probably are important explanations.

The first jobs of about 65 percent of the coops were trade related, compared to 35 percent of the voc ed graduates and 15 percent of the work study and of the general academic. Most of the work study and general academic graduates saw little direct connection between their initial job after leaving high school and their course of study. Most of the positive responses came from individuals who had majored in business or distributive education, had attended a technical high school or taken an industrial arts course.

Economic Characteristics of the First Job

Three key aspects are considered, namely, hourly wages, weekly hours, and the length of time on the job.

1. Hourly Wages. Differences among programs in the average starting wage of the first job held by their members after graduation were small and not statistically significant.[1] This conclusion holds whether we include all 343

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[1] The beginning wage used for jobs carried over from high school was the earned wage at the start of June 1972, that is, right after graduation.

181

individuals with whom an initial interview was held or the 291 whom we were able to follow over the entire survey period.

In both cases, the initial wage of the former coop students was not exceptional, and was on the low side compared to that of the other groups. The coop starting wage averaged $2.40 in the instance of the 343 individuals compared to $2.49 for the voc ed graduates, $2.67 for the work study and $2.61 for the general academic. The spread between the coop and the work study graduate was a mere 11.2 percent. The wage array in the case of the 291 students followed for the entire period was almost identical to that for the 343, beginning with the coops at the bottom with $2.40 and ending with the work study group earning $2.64. See Table 7-6.

For the sake of perspective in 1972, the Federal minimum wage for most non-farm workers was $1.60, gross average hourly earnings of manufacturing production workers in the Boston Standard Metropolitan Statistical Area were $3.99 while the average straight time hourly earnings of male material handling laborers were $3.30 and of male maintenance trade helpers, $3.89.[1] The average beginning wage of members of the four student groups thus were substantially below all but the minimum wage. For example, the coops' $2.40 was just 60.2 percent of the production worker average, 72.7 percent of the material handlers' wage and 61.7 percent of the trade helpers' wage.[2]

The similarity of each group's average beginning wage, however, does not mean that individual students, irrespective of program, began their work careers earning much the same. The differences within groups were substantial, but less so for the coops. See Table 7-6. The maximum wage as a multiple of the minimum wage varied from a low of 2.8 for the coops, to a high of 5.2 for the general academics, with the regular vocational and the work study students in between at 3.4 and 3.7, respectively.

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[1] The average hourly earnings of manufacturing production workers are from U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, Bulletin 1370-11, U.S. Government Printing Office, Washington, D.C., 1975, p. 330; the straight time hourly earnings of male material handling laborers and of male maintenance trade helpers are for August 1972 and are from U.S. Department of Labor, Bureau of Labor Statistics, Area Wage Survey, Boston, Massachusetts, Metropolitan Area, August 1972, Bulletin 1775-13, U.S. Government Printing Office, Washington, D.C., December 1972, p. 29.

[2] The respective proportions for the regular vocational graduates, were 62.4 percent, 75.5 percent, and 64.0 percent; for the work study graduates, 66.9 percent, 80.9 percent, and 68.6 percent; and for the general academic graduates, 65.4 percent, 79.1 percent, and 67.1 percent.

2. Weekly Hours. The former coops averaged more hours of work per week on their first post-high school jobs than members of the other groups (40.0 hours compared to 37.0 for both the voc ed and work study graduates, and 34.6 for the general academic graduates). None of the differences in weekly hours among the other groups were statistically signficant.

Nearly all the coops (89.3 percent) worked at least 40 hours a week; the next closest group was the voc eds, 75.0 percent of whom worked that long. The proportions of the work study and general academic groups were considerably lower (61.4 percent and 59.6 percent, respectively), although in their cases fewer than 40 hours probably was a full week's work, because of their concentration in the trade and service sectors. However, even if we define a full week as 35 hours and over, the coops still came out well ahead of the others.[1] The general academic group had far the highest proportions in part-time jobs (35.9 percent worked fewer than 35 hours).

The coops, along with the voc eds, also seemed predisposed to long hours; 20.4 percent of the coops and 21.4 percent of the voc eds put in over 40 hours a week, proportions about double those of the work study and general academic graduates. If hours per week are the measure, the former coops displayed a high propensity for work, income or both.

3. Retention of First Job. Only a minority of the members of any group remained on their initial job for the entire survey period. The coops were no more prone than the others to stay. Of the 103 coop students with whom at least an initial interview was held, 71 or 68.9 percent did not continue with their original employer. The proportions of the other groups who did not remain also were high: 75.0 percent of the voc ed students, 72.9 percent of the work study, and as many as 85.7 percent of the general academic. In each group the large majority of these terminations were voluntary.

Over half of all the terminations from the first post-high school job had occurred by the end of the first summer out of school or in the early fall of that year (1972), with the exception only of the work study graduates. It was not until the end of the year that approximately half of the latter no longer held their first job. The coops seemed to terminate somewhat more slowly at the start than the regular vocational graduates, but by the end of 1972 about 70.0 percent of the terminees of both groups already had left their first employer.

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[1] Now 94.2 percent worked full time compared to 78.6 percent of the voc ed group, 77.1 percent of the work study, and 64.1 percent of the general academic.

By June or July of 1973, about a year after graduation, at least 90.0 percent of all the terminations by each group had occurred. The slow start of the coops had been made by the end of April 1973; by then 92.1 percent of their first employer terminations had been made. Their delayed and then the accelerated turnover may have been related to the central city diploma requirement of working in a related trade for a year. Central city coops could leave school permanently in the Spring of 1972 to work full time. Students with full-time jobs were allowed to complete their senior year before the official end of school.

Non-Economic Characteristics of the First Job

This section examines the pivotal first job held by members of each program with respect to industry, occupation, location, commuting time, company size, union status, job satisfaction and finally reasons for termination. There were two prominent differences by program, namely, the industry and occupational mix of the first job, and the reasons for leaving it. The other non-economic characteristics were distinctive but did not differ by program.

1. Industry and Occupation. The first jobs of the graduates of each program had a distinctively different industry pattern, as did their occupations, these two features being related. Omitting the work study group, the first jobs of members of each group tended to be concentrated in two or three industries' sectors, but these sectors were either not identical for each program or, if so, not of equal importance. Two sectors absorbed a majority of the coops: durable goods manufacturing (32.0 percent) and construction (21.4 percent). These two sectors employed the largest groups of coops while in their senior year in school; 30.4 percent in durable manufacturing and 15.2 percent in construction. Two sectors also accounted for a majority (about half) of the voc ed graduates; one of these, durable goods (26.2 percent), was important also for the coops; but the second, retail trade (27.4 percent), was not. Only 12.2 percent of the voc eds were employed in durable goods during their senior year in school. The services also was the third most important sector for the voc ed graduates, but took proportionately more of them (17.9 percent) than the coops. See Table 7-7 and Table 7-8.

Overall, four industries accounted for the great majority (71.8 percent) of the first post-high school jobs of all the sample members taken together. With one exception, these industries were the same ones that were prominent for one or more of the separate groups: durable goods manufacturing (highly significant for all but the coops, and especially significant for the general academic and voc ed students); services (relevant for all groups, but less so for the coops), and construction (important chiefly for the coops and the work study group).

The initial industry distribution of our sample differed considerably from the 1970 area employment of 18-19, and 20-24 year old males, 16 and over. Disproportionately high numbers of our sample were in construction and durable goods. On the other hand, despite the importance of retail trade and services in our sample, its members were under represented in both sectors compared to employed males 18 to 19, 20 to 24 and 16 and older in the area. The sample group whose industry representation came closest to the area pattern for young males was the general academic, and the group whose distribution departed most from that of young males in the area was the coops. See Table 7-9. Unquestionably, the coop program exerted a strong influence in determining the sectors in which its graduates initially went to work.

The initial occupations of sample members showed distinctively different patterns, depending on high school program. On one side were the coops, overwhelmingly in blue-collar jobs (88.4 percent), and considerably more likely than any of the others to be working in the skilled trades (57.3 percent), typically as learners, helpers or apprentices. On the other side were the work study and general academic graduates, with a more varied occupational distribution than the coops, and more likely to be employed as unskilled laborers, as unskilled service workers, or as clerical workers.

Sharing aspects of both occupational patterns were the former voc ed students. Like the coops, but not to the same extent, a large majority were in blue-collar jobs (64.3 percent) and a significant proportion in skilled trades work (33.3 percent). However, the voc ed students were more dispersed occupationally than the coops, and a higher proportion were clerical workers (10.7 percent) and unskilled service workers (11.9 percent). Although the proportion of operatives in each of the four programs differed, these differences did not disturb the key feature of the three occupational profiles that differentiated the coops, voc eds, and the two other groups. In all four groups, the proportion of operatives was not too dissimilar, ranging from almost 15.0 percent for the coops to exactly 19.0 percent for the voc eds. See Table 7-10.

The three basically different occupational distributions described above can be seen clearly in Table 7-11, which ranks each group's initial occupation by relative size.

To put our findings into perspective; the occupational choices of our sample members are compared with the 1970 occupations of young men of similar age (18 and 19) in the metropolitan area. The major disparities were between the coops and the voc eds on the one hand, and area youth on the other; 88.3 percent of the coops and 64.3 percent of the voc ed graduates were working as blue-collar workers compared to 48.8 percent of area youths. In contrast to our two vocational groups, the occupational distributions of the work study graduates and even more so the general academic rather closely paralleled the distribution of area 18 and 19 year old males, (except for a higher proportion of the work study and general academic graduates in laboring and unskilled service jobs.) See Table 7-12.

2. Location of Jobs and Commuting Distances. The large majority (65.7 percent) of all first post-high school jobs were in the central city and four contiguous communities directly linked to it by an urban transit system. The entire area fell within an eight mile radius centered on the downtown business district of the central city. Large proportions of the initial jobs of the coops (70.3 percent), work study (69.7 percent), and general academics (68.5 percent) also were in this area. However, the coops and the general academics were more likely to be working in the central city than members of the other groups. The location of the first coop jobs was somewhat unique in another way as well. A disproportionate share (25.7 percent) were in an outer band of communities at least 12.5 miles from the downtown section of the center city. Only the voc eds held a similar proportion of jobs that far from downtown (28.0 percent). See Table 7-13.

The community in which a sample member's first job was located typically was his home community where he had attended school. Residence,more than the distribution of employment opportunities in the metropolitan area,seemed to account for the location of most first jobs. This conclusion holds best for those educated in the central city and adjacent communities. The further the home from the metropolitan center the less likely for the job to be in the same community.

Limited spatial mobility was most common among voc ed graduates of schools in the central city and immediately adjacent communities, and least among the central city coops and voc ed graduates of schools in the non-contiguous and more distant communities. An estimated 95.0 percent of these voc ed graduates were working in their home communities compared to an estimated 68.0 percent of the coops and the more distant voc eds. Most central city work study and general academic students also worked in the community in which they lived.

Commuting times and methods reflected this restricted mobility. The large majority (over three quarters) of each group spent less than half an hour getting to work. Intergroup differences, although small, reflected the variations in mobility noted above. For example, 73.6 percent of the coops spent under 30 minutes commuting compared to 80.6 percent of the voc eds and 83.3 percent of the work study. About half (52.8 percent) of all sample members drove to their first job; most of the rest either took public transportation (26.0 percent) or walked (19.2 percent).

In general, then, most sample members worked close to home. The location of their initial jobs more closely paralleled the location of their homes than of employment in the metropolitan area. This parallel was least valid for coops in the central city and for voc eds from more distant schools, and most valid for central city voc ed and work study students. Relatively short commuting times and small transit expenses reflected the short distances travelled to work. The high proportion of jobs in or very close to the central city would seem to eliminate local area variations as factors in the pattern of earnings of sample members. However, since manufacturing, especially durable goods, was more important outside the central city and its immediate vicinity than within, it is possible that there were important differences in wages in that industrial sector associated with location.

3. Size and Union Status of First Employer. The initial employer of over half the members of the combined groups (54.8 percent) was small, employing 50 people or less.[1] Sixty percent began their first post-high school jobs in firms employing no more than 100 people, and only 27.5 percent in firms employing over 500.

The coops especially were found working for small employers; 72.3 percent were in companies with no more than 50 workers, compared to 54.8 percent of the vocational education graduates, 46.6 percent of the work study and 40.0 percent of the general academic. At the other extreme, only about a tenth (10.6 percent) of the coops began in large companies employing over 500 people, as against roughly one-quarter of the voc eds and two-fifths of both the work study and general academics.

Relatively few first jobs of any group were with unionized employers. The overall proportion of 21.1 percent held approximately for each group, despite the prevalence of blue-collar jobs and jobs in the construction and durable goods sectors for two groups in particular, the coop and voc ed.

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[1] Based upon responses of 305 sample members. If the firm was not listed in state industrial directories or not known to the staff of the research project, the interviewee's estimate was used.

4. Satisfaction with the First Job and the First Employer. It was hypothesized that coops would express more job satisfaction than members of the other groups because of placement in trade-related work and the greater likelihood of receiving training. In turn, these benefits at a minimum, would compensate for any lack of economic advantage relative to other groups or else form the basis for greater satisfaction with the employer. Our hypotheses were not substantiated.

Large and nearly equal proportions of all groups liked their first job and their first employer, and gave much the same explanations. Somewhat surprising was the failure of the coops in particular to stress nature of their work or training opportunities. These two features were no more important to the coops than to the others, and in no group did each account for a large proportion of reasons.

About four-fifths of the former coop, voc ed and work study students, and three-quarters of the general academic, liked their initial job. Of the 278 who answered this question, only 39 (14.0 percent) were dissatisfied and another 15 (5.4 percent) were uncertain. See Table 7-14. Equally large and uniform proportions in each group also expressed satisfaction with their initial employer. The coops again were no different than the others. See Table 7-15. The similarity of responses to both the question of satisfaction with the job and with the employer reflected the difficulty sample members had treating the two independently.

The reasons given by members of each group for liking their first job (as distinct from their employer) revealed a common pattern of preferences. No one factor dominated, suggesting either that none was of overriding importance or that none was distinctly superior to warrant special praise. The reason most frequently mentioned, and about the same proportion of times, by each group was the nature of the work; wages, working conditions and personal relations were almost secondary. See Table 7-16.

The failure of the coops to emphasize training prospects is difficult to interpret. It is possible that these were taken for granted rather than considered unimportant. Another surprise was the relatively few times the kind of supervision was mentioned as a reason for liking a job, raising questions about the quality of the relationship or rapport between sample members under their immediate bosses.

188

As seen in Table 7-16, the expectations the coops had about training and valuable work experience frequently went unsatisfied, perhaps because their sights had been set higher than those of the others. Training and experience accounted for over a third (35.0 percent) of the reasons the coops gave for taking their first job compared to only 14.2 percent of the reasons for liking it. Interestingly, no group seemed disappointed about the nature of the work itself. In fact, the coops and the former general academic students were much more likely to have given it as a reason for liking their first job than for taking it. In the case of the coops, the kind of work might have served as a substitute for unrealized opportunities and actually might have reflected assignments that incorporated informal learning or training. The biggest disappointment for all groups except the coops, was the pay. It was cited as a reason for liking the job only half as often as a reason for taking it.

5. Reasons for Liking or Disliking the First Employers. As noted in the last section, a large majority of the overall sample and of each group were satisfied with their first post-high school employer. However, no particular reason could be elicited from a noticeable minority (25.2 percent) of all the 218 satisfied sample members, nor by noticeable minorities of the satisfied members of each group.

For those who could specify reasons, no one reason stood out, although human considerations outweighed economic by nearly two-to-one. Considerate company rules, a "friendly" management and "friendly" co-workers accounted for half (50.4 percent) of the reasons for liking an employer. In contrast, wages, fringe benefits, promotion opportunities, and job security, as a group, constituted just 2.6 percent of the reasons. Whether a company was considered a good place to work seemed to depend much more on the quality of treatment by management and the quality of relations with fellow employees, than on "bread-and-butter" matters. See Table 7-17.

Too few individuals explicitly disliked their initial employer to allow meaningful intergroup comparisons. However, unlike those who liked their first employer, the 38 who did not had no difficulty articulating reasons. Moreover, two reasons dominated, namely, "poor" wages and "bad" or "unfriendly" management, and economic and human factors were mentioned equally often. The unsatisfactory human relations were chiefly difficulties with company rules governing tardiness and absences, and with supervisors over discipline and conduct at work.

6. Reasons for Terminating. This section discusses intergroup differences in the proportion of voluntary and involuntary separations. In reference to voluntary separations two topics are treated. The first is whether individuals had another job. The second is a comparison of job-connected reasons for leaving the first job. Job-connected reasons exclude quits for health and personal reaons, or to engage in non-labor market activities. The objective is to see whether coop students made more satisfying initial job choices than other students.

As observed earlier, the large majority (75.9 percent) of all separations from the first post-high school job were voluntary, but not many more than half (53.7 percent) of the latter represented an inter-employer move. The other voluntary shifts led to withdrawals from the labor force.

Considerably more, proportionately, of the work study and general academic quits than the coop and voc ed were made to leave the labor force. The general academic graduates usually withdrew to continue their education; the members of the other groups were more likely to leave to join the armed forces. This difference in the proportions of voluntary moves leading to another job reflects the stronger labor force commitment of the coops and voc eds than of the others. See Table 7-18. However, when involuntary terminations are considered, more coops and voc ed graduates actually withdrew from the labor market following their first job than quit it for this purpose. In all groups, the additional withdrawals come from those laid off or discharged. Moreover, intergroup differences in the proportion of all job separations ending in a withdrawal were smaller than differences in the proportion of all voluntary quits made to withdraw.

Nearly half (47.9 percent) of those remaining in the labor market after terminating their first job had another job. The others became unemployed. The coops were least likely and the general academic students most likely to move from one job to the next without an intervening period of unemployment. Only 38.5 percent of the coops did not become unemployed compared to 60.5 percent of the general academic graduates. See Table 7-19. A possible explanation for the disparity between the coops and general academics was the high proportion of coops whose first job ended involuntarily (28.2 percent) compared to the general academics (15.4 percent). Also a substantial number of coops worked in construction, an industry with wide employment swings.

The voluntary quit rate of coops in jobs related to their trade was 48.6 percent, somewhat higher than the 42.4 percent rate of coops on unrelated jobs, and about the same as the voluntary quit rates of all but one general academic group from first post-high school jobs. The overall quit rate for all initial jobs was 50.9 percent.

Moreover, the coop quit rate from all jobs carried over from high school (42.9 percent) was not measurably different than the coop quit rate on all their first jobs (46.6 percent). See Table 7-20. However, the coop quit rate from related jobs begun during high school was a significantly lower 36.7 percent in comparison to all related jobs held by coops (48.6 percent) and all carry-over jobs (42.9 percent) held by them.

The coops had about the same job-related reasons for voluntarily leaving their first post-high school job as members of the other group. The desire for another or better kind of job, or dislike of the current kind, accounted by far for the largest share of the reasons given by members of all groups, amounting to approximately half of those from each of the four groups. Many of our interviewees had difficulty articulating the precise reason. However, they appeared to be reacting adversely to the kind of work or job duties. See Table 21.

The frequency with which the young men surveyed and left their first employer because they wanted a different or better kind of job indicated a period of haste and indecision about occupational preferences. Sample members evidently were in the process of testing different companies and kinds of work. Unexpectedly, the coops and voc eds wanted something different or better, at least as frequently as members of the two other groups.

The remaining reasons for quitting the initial job were more specific than the broad "kind of work" reason just discussed. Three were uppermost: wages, non-monetary conditions (chiefly hours and shifts), and difficulty obeying company rules or getting along with employers and immediate supervisors. Non-monetary factors constituted just 14.6 percent of the coop reasons, 10.8 percent of the voc ed, and 12.5 percent of the work study. There was some indication, admittedly slight, that the coops and voc eds might have had a bit more trouble adjusting to work discipline than the others. Discharges combined with voluntary quits over difficulties with company rules and supervisors accounted for 14.7 percent of the coop separations and 16.9 percent of the voc ed.

To summarize, most terminations from the first job were voluntary, although a high proportion were made to leave the labor force. Compared to the separations of the two other groups, coop and voc ed separations were more likely to be involuntary, and when voluntary, less likely to be for the purpose of withdrawing from the labor market. Although this finding indicated a stronger coop and voc ed commitment to work, taking into account involuntary terminations narrowed the differences among groups. In the proportions leaving the labor market after the first job, about half had an alternative in mind, but this was less true of the coops. Coops who remained in the labor market had much the same reasons for quitting their first jobs as other sample members. In all groups, dissatisfaction over the kinds of work was the main cause. Unexpectedly, coops were as likely to voluntarily leave trade-related jobs as trade-unrelated ones, except for trade-related jobs continued from high school.

7. Quitting Trade-Related Jobs. Different degrees of trade attachment could reflect differences in the initial selection of students for programs, as well as the growing familiarity of students with the characteristics of different trades. Greater awareness, however, could induce either greater attachment or less attachment, depending upon the reasons students chose or were accepted by different programs. The more successful are programs in enrolling students with an interest in, and ability for, specific trades, the greater the likelihood of students remaining in them.

As previously noted, 48.6 percent of the 70 coop graduates whose initial job was trade-related, quit it for another. The next job of a surprisingly high proportion (70.6 percent) was not related to their high school trade. In contrast, of the 33 coops with an unrelated first job, only 21.2 percent voluntarily left it for another.

Almost the opposite behavior was shown by voc eds when leaving their first jobs. Of the 30 whose initial job was trade-related, just ten (33.3 percent) voluntarily left and went directly to, or sought, another job. The next job of seven of the 10 was the trade. Nine voc ed graduates (16.7 percent) left an unrelated first job; four of them took a second job that was trade-related. Over two-thirds (68.0 percent) of the coops' first jobs were trade-related compared to 33.3 percent of their next job; in contrast, the proportion of voc eds in trade-related jobs rose from 35.7 percent on the first job to 44.7 percent on the second.

There was less dissatisfaction over wages or other economic considerations[1] than dissatisfaction over the kind of work that prompted those who quit a related first job to take an unrelated one. Table 7-22, which is restricted to job-connected reasons for voluntarily leaving related and unrelated jobs,[1] shows that nearly half (47.4 percent) of the reasons left trade-related jobs for unrelated ones pertained to the kinds of work. On the other hand, the kinds of work constituted even a higher proportion (63.6 percent) of the reasons coops left one related job for another related job.

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[1] Fringe benefits or inadequate number of hours.

The number of sample members was too small to further disaggregate related and unrelated first jobs by the trades studied. However, reasons for terminating the first post-high school job were analyzed by trade. The kind of work appeared important for former students of three of the coop programs and one of the voc ed programs. The three coop programs were electrical, machine shop, and sheet metal. The one voc ed was sheet metal.[2] Dissatisfaction over pay appeared more important than the kinds of work for three regular vocational trade programs and one coop. The three voc ed were auto mechanic, machine shop and sheet metal; the one coop, auto mechanic. Given the nature of the local wage structure, the probability of relatively low earnings in local garages and service stations and in local machine shops was high. See Table 7-23.

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[1] Excluded are quits for personal and health reasons, or to leave the labor force.

[2] But for the few sample members covered, electrical and auto body might have been eligible for this distinction as well.

Table 7-1: Distribution of Program Graduates by the Number of Weeks Needed to Find Their First Post-High School Job[a].

HIGH SCHOOL PROGRAM

Weeks	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Under 1	78	61	60	64	263
	(75.7%)	(72.6%)	(85.0%)	(70.3%)	(75.6%)
1-2	4	5	1	5	15
	(3.9%)	(6.0%)	(1.4%)	(5.5%)	(4.3%)
3-4	4	7	2	7	20
	(3.9%)	(8.4%)	(2.9%)	(7.7%)	(5.7%)
5 and over	17	11	7	15	50
	(16.5%)	(13.1%)	(10.0%)	(16.5%)	(14.4%)
Total	103	84	70	91	348
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
Average	3.0	2.8	2.3	3.4	2.9
Median	0.0	0.0	0.0	0.0	0.0

[a] Includes everyone with at least one job after high school graduation with whom a final interview was held.

Table 7-2: Distribution of Program Graduates by Sources of their First Post-High School Jobs (Multiple Answer Possible).[a]

HIGH SCHOOL PROGRAM

Source	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total Answers
Personal Contacts	38 (35.2%)	50 (53.8%)	30 (43.5%)	53 (57.6%)	171 (47.2%)
Friends	23 (21.3%)	30 (32.3%)	17 (24.6%)	31 (37.7%)	101 (27.9%)
Relatives	15 (13.9%)	20 (21.5%)	13 (18.8%)	22 (23.9%)	70 (19.3%)
Schools	47 (43.5%)	16 (17.2%)	22 (31.8%)	6 (6.5%)	91 (25.1%)
Coop, Work Study and Vocational Placement Administration	34 (31.5%)	3 (3.2%)	5 (7.2%)	0 (0.0%)	42 (11.6%)
Shop Teachers	3 (2.8%)	3 (3.2%)	0 (0.0%)	0 (0.0%)	6 (1.7%)
Guidance Counselors	2 (1.9%)	6 (6.5%)	1 (1.4%)	2 (2.2%)	11 (3.0%)
Others	8 (7.4%)	4 (4.3%)	16 (23.2%)	4 (4.3%)	32 (8.8%)
Direct Application	16 (14.8%)	18 (19.4%)	10 (14.5%)	20 (21.7%)	64 (17.7%)
Newspaper Advertisements	4 (3.7%)	4 (4.3%)	5 (7.2%)	3 (3.3%)	16 (4.4%)
State Employment Service	1 (0.9%)	2 (2.1%)	0 (0.0%)	2 (2.2%)	5 (1.4%)
Community Service and Private Employment Agencies	1 (0.9%)	1 (1.1%)	0 (0.0%)	5 (5.4%)	7 (1.9%)
Other	1 (0.9%)	2 (2.2%)	2 (2.9%)	3 (3.3%)	8 (2.2%)
Total	108 (100.0%)	93 (100.0%)	69 (100.0%)	92 (100.0%)	362 (100.0%)

[a] Three hundred and sixty-two (362) answers were obtained from 329 individuals (100 coop, 80 regular vocational, 63 work study, and 86 general academic).

195

Table 7-3: Distribution of Reasons for Taking First Post-High School Job by Program (Multiple Responses Possible)[a]

Reasons	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Not Job Related					
"only" or "best" job available, needed the money	62 (50.0%)	59 (59.6%)	30 (36.6%)	62 (54.9%)	213 (51.0%)
School Requirement	9 (7.3%)	0 (0.0%)	11 (13.4%)	3 (2.7%)	23 (5.5%)
Total	71 (57.3%)	59 (59.6%)	41 (50.0%)	65 (57.5%)	236 (56.5%)
Job Related					
Training Opportunity or Experience	21 (16.9%)	5 (5.1%)	6 (7.3%)	7 (6.2%)	39 (9.3%)
Kind of Work	6 (4.8%)	12 (12.1%)	10 (12.2%)	8 (7.1%)	36 (8.6%)
Subtotal	27 (21.8%)	17 (17.2%)	16 (19.5%)	15 (13.3%)	75 (17.9%)
Wages	9 (7.3%)	7 (7.1%)	8 (9.8%)	11 (9.7%)	35 (8.4%)
Non-wage aspects	14 (11.3%)	14 (14.1%)	16 (19.5%)	20 (17.7%)	64 (15.3%)
Other	3 (2.4%)	2 (2.0%)	1 (1.2%)	2 (1.8%)	8 (1.9%)
Total	53 (42.7%)	40 (40.4%)	41 (50.0%)	48 (42.5%)	182 (41.1%)
All Reasons	124 (100.0%)	99 (100.0%)	82 (100.0%)	113 (100.0%)	418 (100.0%)

[a] A total of 418 reasons were given by 328 individuals (99 coop, 81 voc ed, 62 work study, and 86 general academic.

Table 7-4: Distribution of Job Related Reasons for Taking First Post-High School Job by Program (Multiple Responses Possible).

Job Related Reasons	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Training Opportunity or Experience	21 (39.6%)	5 (12.5%)	6 (14.6%)	7 (14.6%)	39 (21.4%)
Kind of Work	6 (11.3%)	12 (30.0%)	10 (24.4%)	8 (16.7%)	36 (19.8%)
Wages	9 (17.0%)	7 (17.5%)	8 (19.5%)	11 (22.9%)	35 (19.2%)
Non-wage Aspects	14 (26.4%)	14 (35.0%)	16 (39.0%)	20 (41.7%)	64 (35.2%)
Other	3 (5.7%)	2 (5.0%)	1 (2.4%)	2 (4.2%)	8 (4.4%)
Total	53 (100.0%)	40 (100.0%)	41 (100.0%)	48 (100.0%)	182 (100.0%)

Table 7-5: Average Starting Wage on First Post-High School Job, by Program.[a]

Program	All Having an Initial Interview (n=343)	Those Followed for the Entire Period (n=291)
(1) Coop	$2.40 (102)	$2.40 (96)
(2) Regular Vocational	2.49 (83)	2.51 (66)
(3) Work Study	2.67 (70)	2.64 (55)
(4) General Academic	2.61 (88)	2.54 (74)
Overall Average	2.53 (343)	2.51 (291)

[a] Figures in parentheses under the wage figures give the numbers interviewed.

198

Table 7-6: Medians and Measures of Dispersion for Average Starting Wages on First Post-High School Job, by Program.
(n=343)

Program	Median[a]	Standard Deviation	Minimum Wage	Maximum Wage	Range	Middle Range[b]
(1) Coops (102)	2.40	47.5	1.60	4.50	2.90	2.000-2.500
(2) Regular Vocational (83)	2.49	62.2	1.75	6.00	4.25	2.000-2.750
(3) Work Study (70)	2.67	76.75	1.75	6.50	4.75	2.225-2.860
(4) General Academic	2.61	90.5	1.60	8.29	6.69	2.150-2.725

[a] Calculated from original, ungrouped figures.

[b] A fourth earn less than the lower rate and a quarter earn more than the higher rate.

Table 7-7: Ranking of Industries of First Post-High School Jobs by Proportion of Sample Members Employed, by Program.

PROGRAM			
(1) Coops	(2) Regular Vocational	(3) Work Study	(4) General Academic
Durable Goods (32.0%)	Retail Trade (27.4%)	Retail Trade (18.6%)	Retail Trade (38.5%)
Construction (21.4%)	Durable Goods (26.2%)	Fin, Ins, R.E. (18.6%)	Services (15.4%)
Services (12.6%)	Services (17.9%)	Services (18.6%)	Durable Goods (13.2%)
Nondurable Goods (11.7%)	Trans, Comm. & Util. (8.4%)	Construction (15.7%)	Construction (7.7%)
Retail Trade (10.7%)	Nondurable Goods (6.0%)	Durable Goods (12.9%)	Nondurable Goods (6.6%)
Wholesale Trade (5.8%)	Construction (4.8%)	Nondurable Goods (5.7%)	Trans,Comm & Util. (4.4%)
Trans, Comm, & Util. (3.8%)	Fin, Ins, & R.E. (3.6%)	Trans, Comm, & Util. (4.3%)	Wholesale Trade (4.4%)
Public Adm. (1.9%)	Public Adm. (2.4%)	Public Adm. (4.3%)	Fin, Ins, & R.E. (4.4%)
Fin, Ins, & R.E. (0.0%)	Wholesale Trade (2.4%)	Wholesale Trade (1.4%)	Public Adm. (4.4%)
Agric & Mining[a] (0.0%)	Agric & Mining (1.2%)	Agric & Mining (0.0%)	Agric & Mining (1.1%)

[a] Agriculture, Forestry, Fishing and Mining.

Table 7-8: Industry Distribution of First Post-High School Jobs of Sample Members, by Program.

Industry	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
	Program				
Agriculture, Forestry, Fishing, and Mining	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (1.1%)	2 (0.6%)
Construction	22 (21.4%)	4 (4.8%)	11 (15.7%)	7 (7.7%)	44 (12.6%)
Manufacturing	45 (43.7%)	27 (32.1%)	13 (18.6%)	18 (19.8%)	103 (29.6%)
Durable Goods	33 (32.0%)	22 (26.2%)	9 (12.9%)	12 (13.2%)	76 (21.8%)
Nondurable Goods	12 (11.7%)	5 (6.0%)	4 (5.7%)	6 (6.6%)	27 (7.8%)
Transportation, Communications and Public Utilities	4 (3.9%)	7 (8.3%)	3 (4.3%)	4 (4.4%)	18 (5.2%)
Trade	17 (16.5%)	25 (29.8%)	14 (20.0%)	39 (42.9%)	95 (27.3%)
Wholesale	6 (5.8%)	2 (2.4%)	1 (1.4%)	4 (4.4%)	13 (3.7%)
Retail	11 (10.7%)	23 (27.4%)	13 (18.6%)	35 (38.5%)	82 (23.6%)
Finance, Insurance and Real Estate	0 (0.0%)	3 (3.6%)	13 (18.6%)	4 (4.4%)	20 (15.7%)
Services	13 (12.6%)	15 (17.9%)	13 (18.6%)	14 (15.4%)	55 (15.8%)
Public Administration	2 (1.9%)	2 (2.4%)	3 (4.3%)	4 (4.4%)	11 (3.2%)
Total	103 (100.0%)	84 (100.0%)	70 (100.0%)	91 (100.0%)	348 (100.0%)

Table 7-9: Industry Distribution of First Post-High School Jobs of Sample Members and of Employed Males, 18 and 19, 20 to 24, and 16 and over, Boston Standard Metropolitan Statistical Area, 1970.

Industry	Employed Males, Boston Area 18 and 19	 20 to 24	 16 and over	First Job of All Sample Members
Agriculture, Forestry Fishing, Mining	244 (1.0%)	546 (1.0%)	5395 (1.0%)	2 (0.6%)
Construction	1336 (5.4%)	5579 (7.7%)	53, 270 (7.9%)	44 (12.6%)
Manufacturing[a]	4797 (19.3%)	17,455 (24.1%)	175,434 (26.2%)	103 (29.6%)
Durable Goods	2912 (11.7%)	12,016 (16.6%)	113,960 (17.0%)	76 (21.8%)
Nondurable Goods	1862 (7.5%)	5317 (7.3%)	60,277 (9.0%)	27 (7.8%)
Transportation, communications and Public Utilities	1272 (5.1%)	5354 (7.4%)	54215 (8.1%)	18 (5.2%)
Trade	9799 (39.5%)	16104 (22.2%)	138,195 (20.6%)	95 (27.3%)
Wholesale	997 (4.0%)	3837 (5.3%)	40,779 (6.1%)	13 (3.7%)
Retail	8802 (35.5%)	12,267 (16.9%)	97,416 (14.5%)	82 (23.6%)
Finance, Insurance and Real Estate	1058 (4.3%)	4728 (6.5%)	39,691 (5.9%)	20 (5.7%)
Services	5742 (23.2%)	19,775 (27.3%)	155,169 (23.1%)	55 (15.8%)
Public Administration	572 (2.3%)	2856 (3.9%)	49,166 (7.3%)	11 (3.2%)
Total	24,820 (100.0%)	72,397 (100.0%)	670,535 (100.0%)	348 (100.0%)

[a] Includes unspecified manufacturing industries not separately classified as durable or nondurable goods.

Source: U.S. Bureau of the Census, Census of Population: 1970, Detailed Characteristics, Final Report, PC(1)-D23, Massachusetts, U.S. Government Printing Office, Washington, D.C., 1972, p. 23-975.

Table 7·10: Occupational Distribution of First Post-High School Jobs of Sample Members, by Program.

	Program				
Occupation	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
White-Collar	6 (5.8%)	14 (16.7%)	21 (30.0%)	26 (28.6%)	67 (19.3%)
Professional, Technical and Managerial	0 (0.0%)	5 (6.0%)	2 (2.9%)	5 (5.5%)	12 (3.4%)
Clerical and Sales	6 (5.8%)	9 (10.7%)	19 (28.6%)	21 (23.1%)	55 (15.8%)
Blue-Collar	91 (88.3%)	54 (64.3%)	39 (55.7%)	48 (52.7%)	232 (66.7%)
Craft	59 (57.3%)	28 (33.3%)	11 (15.7%)	11 (12.1%)	109 (31.3%)
Operatives	15 (14.6%)	16 (19.0%)	13 (18.6%)	15 (16.5%)	59 (17.0%)
Laborers	17 (16.5%)	10 (11.9%)	15 (21.4%)	22 (24.2%)	64 (18.4%)
Service	6 (5.8%)	16 (19.0%)	10 (14.3%)	17 (18.7%)	49 (14.1%)
Unskilled[a]	6 (5.8%)	10 (11.9%)	8 (11.4%)	11 (12.1%)	35 (10.1%)
Other	0 (0.0%)	6 (7.1%)	2 (2.9%)	6 (6.6%)	14 (4.0%)
Total	103 (100.0%)	84 (100.0%)	70 (100.0%)	91 (100.0%)	348 (100.0%)

[a] Cleaners, janitors, and kitchen workers

Table 7-11: Ranking of Occupations of First Post-High School Jobs by Proportion of Sample Members Employed, by Program.

Program

(1) Coop		(2) Regular Vocational		(3) Work Study		(4) General Academic	
Crafts	(57.3%)	Crafts	(33.3%)	Clerical	(28.9%)	Laborers	(24.2%)
Laborers	(16.5%)	Operatives	(19.0%)	Laborers	(21.4%)	Clerical	(23.1%)
Operatives	(14.6%)	Laborers	(11.9%)	Operatives	(18.6%)	Operatives	(16.5%)
Unskilled Service[a]	(5.8%)	Unskilled Service[a]	(11.9%)	Crafts	(15.7%)	Crafts	(12.1%)
Clerical & Sales	(5.8%)	Clerical & Sales	(10.7%)	Unskilled Service[a]	(11.4%)	Unskilled Service	(12.1%)
Prof., Tech.& Mgl.	(0.0%)	Other Service	(7.1%)	Prof., Tech. & Mgl.	(2.9%)	Other Service	(6.6%)
Other Service	(0.0%)	Prof., Tech. Mgl.	(6.0%)	Other Service	(2.9%)	Prof., Tech. Mgl.	(5.5%)

[a] Cleaners, janitors, and kitchen workers

Table 7-12: Relative Distribution of Occupations of First Post-High School Jobs of Sample Members, by Group, and Occupations of 18-and 19-year old Males Employed in the Boston Metropolitan Area in 1970.[a]

Occupation	Area Males 18 and 19	Sample Programs (1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic
White-Collar	34.0	5.8	16.7	30.0	28.6
Professional & Technical	7.9	0.0	6.0	2.5	5.5
Clerical & Sales	26.1	5.8	10.7	28.6	23.1
Blue-Collar	48.8	88.3	64.3	55.7	52.7
Crafts[b]	12.8[b]	57.3[b]	33.3[b]	15.7[b]	12.1[b]
Operatives	20.6	14.6	19.0	18.6	16.5
Laborers	15.5	16.5	11.9	21.4	24.2
Service	17.2	5.8	19.0	14.3	18.7
Unskilled[c]	7.2	5.8	11.9	11.4	12.1
Other	10.0	0.0	7.1	2.9	6.6
Total	100.0	100.0	100.0	100.0	100.0

[a] See Table 7-10 for absolute numbers in sample programs.

[b] Area category and sample categories not comparable. Former includes only skilled workers, latter also include semiskilled helpers, learners and apprentices.

[c] Area category includes cleaning service workers, busboys and dishwashers, and private household workers. Program categories include cleaners, janitors and kitchen workers.

Sources: U.S. Bureau of the Census, Census of Population: 1970, Detailed Characteristics, Final Report, PC(1)-D23, Massachusetts, U.S.Government Printing Office, Washington, D.C., 1972. p. 23-843 and 844; sample member data taken from Table 7-10.

Table 7-13: Relative Distribution of Sample Members by Community of First Post-High School Job and Relative Distribution of all Sample Members by Home Community Sample during High School, by Program.

	Central City	Contiguous Communities	Non Contiguous Communities [a]	More Distant Communities	Total
(1) Coop					
Community of Job	55.4	14.9	4.0	25.7	100.0
Home Community	82.7	8.7	7.1	1.6	100.0
(2) Vocational Education					
Community of Job	28.0	25.6	18.3	28.0	100.0
Home Community	28.3	28.3	31.3	12.1	100.0
(3) Work Study					
Community of Job	43.9	25.8	15.2	12.4	100.0
Home Community	36.4	39.8	21.6	2.3	100.0
(4) General Academic					
Community of Job	58.4	10.1	12.4	19.1	100.0
Home Community	63.7	21.2	13.3	1.8	100.0
Total					
Community of Job	47.3	18.3	11.8	22.5	100.0
Home Community	55.5	23.0	17.3	4.2	100.0

a) The home residence is for all 427 sample members, while the job location is for 338 with post-high school jobs.

Table 7-14 Distribution of Sample Members by Whether Satisfied or Dissatisfied with their First Post-High School Job, by Group.

Satisfaction With Job	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Satisfied	73 (81.1%)	54 (83.1%)	42 (82.4%)	55 (76.4%)	224 (80.6%)
Dissatisfied	12 (13.3%)	9 (13.8%)	7 (13.7%)	11 (15.3%)	39 (14.0%)
Unsure	5 (5.6%)	2 (3.1%)	2 (3.9%)	6 (8.3%)	15 (5.4%)
Total	90 (100.0%)	65 (100.0%)	51 (100.0%)	72 (100.0%)	278 (100.0%)

Table 7-15: Distribution of Sample Members by Whether Satisfied or Dissatisfied with their First Post-High School Employer by Group.

Satisfaction with Employer	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Satisfied	75 (84.3%)	53 (81.5%)	38 (76.0%)	52 (74.3%)	218 (79.6%)
Dissatisfied	11 (12.4%)	8 (12.3%)	6 (12.0%)	13 (18.6%)	38 (13.9%)
Unsure	3 (3.4%)	4 (6.2%)	6 (12.0%)	5 (7.1%)	18 (6.6%)
Total	89 (100.0%)	65 (100.0%)	50 (100.0%)	70 (100.0%)	274 (100.0%)

Table 7-16: Distribution of Sample Members' Reasons for Taking[a] and Liking their First Post-High School Job, by Program.

	(1) Coop		(2) Regular Vocational		(3) Work Study		(4) General Academic	
	Taking	Liking	Taking	Liking	Taking	Liking	Taking	Liking
Chance for Training or Special Work Experience	21 (35.0%)	18 (14.2%)	5 (10.4%)	16 (18.0%)	6 (13.0%)	17 (23.0%)	7 (6.2%)	11 (11.8%)
Nature of Work	6 (10.0%)	39 (30.7%)	12 (25.0%)	26 (28.1%)	10 (21.7%)	19 (24.3%)	8 (7.2%)	23 (22.6%)
Easy Job	1 (1.7%)	9 (7.1%)	3 (6.2%)	7 (7.9%)	2 (2.4%)	6 (8.1%)	6 (10.7%)	8 (8.6%)
Wages and Benefits	9 (15.0%)	20 (15.7%)	7 (14.6%)	10 (11.2%)	8 (17.4%)	8 (10.8%)	11 (19.6%)	10 (10.8%)
Non monetary Conditions	7 (11.7%)	18 (14.2%)	5 (10.4%)	8 (9.0%)	10 (21.7%)	9 (12.2%)	7 (12.5%)	18 (19.4%)
Fellow Workers	6 (10.0%)	14 (11.0%)	6 (12.5%)	15 (16.9%)	4 (8.7%)	10 (13.5%)	7 (12.5%)	17 (18.3%)
Supervision	b	9 (7.1%)	b	5 (6.7%)	b	3 (5.4%)	b	2 (4.3%)
Best Job Available	7 (11.7%)	b	8 (16.7%)	b	5 (10.9%)	b	8 (14.3%)	b
Other	3 (5.0%)	0 (0.0%)	2 (4.2%)	2 (2.2%)	1 (2.2%)	2 (2.7%)	2 (3.6%)	4 (4.3%)
Total Reasons	60 (100.0%)	127 (100.0%)	48 (100.0%)	89 (100.0%)	46 (100.0%)	74 (100.0%)	56 (100.0%)	93 (100.0%)

[a] Voluntary reasons only.

[b] Reason not applicable.

Table 7-17. Distribution of Sample Members by Whether Purpose of Voluntary Separation from the First Post-High School Job Was to Withdraw from the Labor Force by Group.

Purpose	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
To change employers	39 (81.2%)	28 (73.7%)	19 (57.6%)	34 (58.6%)	120 (67.8%)
To leave labor force	6 (12.5%)	7 (18.4%)	9 (27.3%)	20 (34.5%)	42 (23.7%)
School	2 (4.2%)	3 (7.9%)	2 (6.1%)	16 (27.6%)	23 (13.0%)
Military Service	4 (8.3%)	4 (10.5%)	5 (15.2%)	3 (5.2%)	16 (9.0%)
Other	0 (0.0%)	0 (0.0%)	2 (6.1%)	1 (1.7%)	3 (1.7%)
Miscellaneous	3 (6.2%)	3 (7.9%)	5 (15.2%)	4 (6.9%)	15 (8.5%)
Total	48 (100.0%)	38 (100.0%)	33 (100.0%)	58 (100.0%)	177 (100.0%)

Table 7-18. Employment Status of Sample Members Who Remained in the Labor Force after Terminating their First Post-High School Job, by Group.

Employment Status	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Employed on New Job	20 (38.5%)	20 (47.6%)	[illegible] (46.[illegible])	26 ([illegible].5%)	79 (47.9%)
Unemployed	32 (61.5%)	22 (52.4%)	15 (53.[illegible])	17 ([illegible])	86 (52.1%)
Total	52 (100.0%)	42 (100.0%)	28 (100.0%)	[illegible] (100.[illegible])	165 (100.0%)

Table 7-19. Distribution of Sample Members' Reasons for Liking their First Post-High School Employer, by Group. (Multiple Answers Possible)[a]

Reasons	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	(5) Total Reasons
Wages	8 (9.9%)	9 (8.3%)	5 (11.1%)	4 (7.7%)	22 (9.2%)
Fringe Benefits	9 (11.1%)	9 (15.0%)	10 (22.2%)	5 (9.6%)	33 (13.9%)
Promotion Opportunities	1 (1.2%)	1 (1.7%)	3 (6.7%)	3 (5.8%)	8 (3.4%)
Job Security	1 (1.2%)	0 (0.0%)	2 (4.4%)	2 (3.8%)	5 (2.1%)
Economic	19 (23.5%)	15 (25.0%)	20 (44.4%)	14 (26.9%)	68 (28.6%)
"Good" company rules	4 (4.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (1.7%)
"Good" or "friendly" management	23 (28.4%)	23 (38.3%)	12 (26.7%)	15 (28.8%)	73 (30.7%)
"Friendly" fellow workers	15 (18.5%)	11 (18.3%)	6 (13.3%)	11 (21.2%)	43 (18.1%)
Human Relations	42 (51.9%)	34 (56.7%)	18 (40.0%)	26 (50.0%)	120 (50.4%)
Working Conditions	12 (14.8%)	8 (13.3%)	3 (6.7%)	7 (13.5%)	30 (12.6%)
Other[b]	8 (9.9%)	3 (5.0%)	4 (8.9%)	5 (9.6%)	20 (8.4%)
Total Reasons	81 (100.0%)	60 (100.0%)	45 (100.0%)	52 (100.0%)	238 (100.0%)

[a] Answers from 179 sample members.

[b] Combines unionized company and expression of satisfaction without specifying reason(s). Only four individuals gave unionization as a reason.

Table 7-20. Number of Separations and Quits and Separation Rates and Quit Rates from First Post-High School Jobs by Whether the Job Was Related to the Trades Studied, by Group.

All First Jobs	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total[a]
Number of Jobs Held	103	84	70	91	348
Number of Separations	71	63	51	78	263
Separation Rate	68.9	75.0	72.9	85.7	75.6
Number of Quits	48	38	33	58	177
Quit Rate	40.6	45.2	47.1	63.7	50.9
Related First Jobs					
Number of Jobs Held	70	30	a	b	100
Number of Separations	50	15	a	b	65
Separation Rate	71.4	50.0	a	b	65.0
Number of Quits	34	10	a	b	44
Quit Rate	48.6	33.3	a	b	44.0
Unrelated First Jobs					
Number of Jobs Held	33	54	a	b	87
Number of Separations	21	48	a	b	69
Separation Rate	63.6	88.9			79.3
Number of Quits	14	28	a	b	42
Quit Rate	42.4	51.9	a	b	48.3

[a] Not Applicable

[b] Too few to be meaningful

[c] Totals of related and unrelated jobs are for coops and voc. eds. only.

Table 7-21. Job-Related Reasons for Quitting their First Post-High School Job of Sample Members remaining in the Labor Market, by Group. (Multiple Answers Possible)[b]

Reasons[a]	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total Reasons
Had or Wanted Another or Better Kind of Job	20 (48.8%)	19 (51.4%)	11 (45.8%)	20 ((55.60%)	70 (50.7%)
Wages	8 (19.5%)	8 (21.6%)	5 (20.8%)	5 (13.9%)	26 (18.8%)
Monetary Conditions	6 (14.6%)	4 (10.8%)	3 (12.5%)	7 (19.4%)	20 (14.5%)
Difficulties with Company Rules and Supervisors	6 (14.6%)	6 (16.2%)	4 (16.7%)	3 (8.3%)	19 (13.8%)
Unspecified Dissatisfaction	1 (2.4%)	0 (0.0%)	1 (4.2%)	1 (2.8%)	3 (2.2%)
Total Reasons	41 (100.0%)	37 (100.0%)	24 (100.0%)	36 (100.0%)	138 (100.0%)

[a] Omits personal and health reasons to engage in school activities, to attend school, to join the military or to take time off.

[b] Responses of 122 individuals; 40 were coop graduates; 30, voc. ed., 22, work study; and 30 general academic.

Table 7-22. Job-Related Reasons[a] of Coop and Regular Vocational Sample Members for Quitting New First Post-High School Job. (Multiple Answers Possible)

	From A Related to An Unrelated Job			From Related to Related Job		
Reasons	(1) Coop	(2) Regular Vocational	Total Reasons	(1) Coop	(2) Regular Vocational	Total Reasons
Wages[b)]	6 (31.6%)	1 (25.0%)	7 (30.4%)	2 (182%)	5 (71.4%)	7 (38.9%)
Kind of Work	9 (47.4%)	2 (50.0%)	11 (47.8%)	7 (63.6%)	2 (28.6%)	9 (50.0%)
Other[c)]	4 (21.1%)	1 (25.0%)	5 (21.7%)	2 (182%)	0 (0.0%)	2 (11.1%)
Total Reasons	19 (100.0%)	4 (100.0%)	23 (100.0%)	11 (100.0%)	7 (100.0%)	18 (100.0%)

	From Unrelated to Unrelated			From Unrelated to Related Job		
Reasons	(1) Coop	(2) Regular Vocational	Total Reasons	(1) Coop	(2) Regular Vocational	Total Reasons
Wages[b)]	2 (50.0%)	1 (25.0%)	3 (37.5%)	0 (0.0%)	1 (25.0%)	1 (25.0%)
Kind of Work	2 (50.0%)	1 (25.0%)	3 (37.5%)	0 (0.0%)	3 (75.0%)	3 (75.0%)
Other[c)]	0 (0.0%)	2 (50.0%)	2 (25.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total Reasons	4 (100.0%)	4 (100.0%)	8 (100.0%)	0 (100.0%)	4 (100.0%)	4 (100.0%)

a) Omits personal and health reasons, to participate in school activities, to attend school, or to enter military service, or to take time off.

b) Also includes fringe benefits and too few hours.

c) Working conditions, and relations with supervisors and other workers.

Table 7-23. Job-Related Reasons[a] of Coop and Regular Vocational Sample Members for Quitting Their First Post-High School Job, by Trades Studied (Multiple Answers Possible).

	Reasons			
	Wages[b]	Kind of Work[c]	Other	Total Reasons
Auto Body				
(1) Coop	1 (33.3%)	1 (33.3)	1 (33.3%)	3 (100.0%)
(2) Regular Vocational	0 (0.0%)	2 (100.9%)	0 (0.0%)	2 (100.0%)
Auto Mechanic				
(1) Coop	2 (33.3%)	1 (16.7%)	3 (50.0%)	6 (100.0)
(2) Regular Vocational	3 (60.0%)	2 (40.0%)	0 (0.0%)	5 (100.0%)
Electrical				
(1) Coop	2 (33.3%)	4 (66.7)	0 (0.0%)	6 (100.0%)
(2) Regular Vocational	1 (33.3%)	2 (66.7%)	0 (0.0%)	3 (100.0%)
Machine Shop				
(1) Coop	3 (18.8%)	8 (50.0%)	5 (31.2)	16 (100.0%)
(2) Regular Vocational	4 (57.1%)	2 (28.6%)	1 (14.3%)	7 (100.0%)
Sheet Metal				
(1) Coop	1 (20.0%)	3 (60.0%)	1 (20.0%)	5 (100.0%)
(2) Regular Vocational	3 (50.0%)	3 (50.0%)	0 (0.0%)	6 (100.0%)
Electronics				
(1) Coop[d]	-	-	-	-
(2) Regular Vocational	2 (40.0%)	1 (20.0%)	2 (40.0%)	5 (100.0%)

a) Omits personal and health reasons, to participate in school activities, to attend school, to enter military service, or to take time off.
b) Also includes fringe benefits and inadequate number of hours.
c) Working conditions and relations with supervisors and other workers.
d) Electronics not offered on a coop basis.

Chapter VIII

COMPARISON OF KEY ASPECTS OF THE POST-HIGH SCHOOL LABOR MARKET EXPERIENCES OF SAMPLE MEMBERS

Certain critical aspects of the post-high school labor market experiences of the sample members were selected as indicators or measures of the effectiveness of the Coop Program, relative to the other programs, in preparing students for an adult work role. The aspects chosen can be interpreted as representing individual earning capacity (or productivity), employability (or acceptance by employers), commitment to the labor force, attachment to a particular occupation, and attainment of personally satisfying work. The specific indicators are: (1) the average hourly wage received over the post-high school period; (2) the final wage earned; (3) the change in wages (or wage progression); (4) hours worked per week; (5) labor force participation; (6) the amount of employment; (7) the amount of unemployment; (8) the degree of satisfaction with the last job; (9) usefulness at work and for finding a job of high school preparation or training; (10) employer provided training; and finally, (11) the occupational and industrial distribution of jobs, including prevalence of trade-related ones.

Two kinds of post-high school wage comparisons were drawn. The first was among each group's average wage over the entire post-high school survey period.[1] The second consisted of the change in each group's wage over the same period. Here, the comparison was between the average beginning wage on the first post-high school job and the average final wage on the last job.[2] The average wage for the whole period and the starting and final wages were calculated for two different cohorts of individuals in each program. Cohorts were used because of the loss of sample members over time.[3] However, such losses materially altered the wages and other labor market indicators of only one group, the general academics.

The first cohort included everyone with whom a final interview had been held. The second cohort excluded those in the first cohort whose labor market participation had been interrupted by lengthy military service or full-time schooling. Lengthy was defined as a period of at least 39 weeks (i.e., three calendar quarters). Even the cohorts, however, did not entirely solve the problem of comparing wages among groups whose internal compositions had changed, because of a few instances in which certain information had been refused or was otherwise unavailable.

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[1] Computed by averaging the starting wage and final wage earned on each post-high school job by members of each group.

[2] For sample members who continued on a job held as seniors, the initial wage was that earned immediately after leaving school.

[3] The inclusion of all those with whom an initial interview had been held would have distorted the wage change of each group because the initial and final composition of each group differed. The final average wage would have included the wages of fewer individuals than the starting average wage.

1. Intergroup Comparison of the Average Post-high School Wage. Despite the large variation in wages within each high school program, there was remarkably little difference in the average hourly wages of each group during the year and a half following school. Intergroup differences were not statistically significant, except in one case, that between the work study and general academic groups. However, in both cohorts, the coop wage of $2.86 (Cohort I) or $2.87 (Cohort II) was the lowest. See Table 8-1.[1]

The average wage for one entire sample (Cohort I) was $2.93, and the difference between the highest and lowest group was just $.21 or 7.3 percent. The range in Cohort II was even smaller ($.17 or 5.9 percent). The value in earnings of a vocational education, whether as a coop or as a regular trade school student, showed no consistent relationship to those of the other curricula.

The $2.97 of the graduates of regular voc ed programs was only four cents above the overall average of $2.93, while the $2.86 of the coop graduate was five cents below it. Only a penny an hour separated the coops from the general academic students, who had had no specific occupational preparation. Work study students with no more than on-the-job experience were in the lead, earning $3.07. These conclusions, of course, are based on work histories covering a relatively brief span. The long-run persistence of this earnings pattern cannot be predicted from this limited evidence.

The earnings of coops and voc ed graduates who had majored in two trades in common (cabinet-making and sheet metal) were almost identical ($2.40 for coops, and $2.45 for voc eds in the first, and $2.62 for coops and $2.60 for voc eds in the second). However, of the six remaining trades, coops who had studied two, auto body and electronics, earned more on the average than their voc ed counterparts,[2] while voc eds earned more in the remaining four. Not only were there differences in the average wages earned by coops and voc ed students who had studied the same trade, but there also was little consistency in the ranking of wages by trade studied as a coop or regular voc ed student. See Tables 8-2 and 8-3.

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[1] Because of the large number of tables in this Chapter, the tables will be run consecutively at the end of the Chapter.

[2] Only two coops studied each of these trades, compared to four voc eds who majored in auto-body and ten in electronics.

2. Intergroup Comparison of Changes in the Average Wage Earned after High School. Looking at Cohort I, the largest absolute and relative gains were enjoyed by the coops, whose wages rose $.97 or 40.3 percent an hour. But nearly the same gains were made by the voc eds ($.92 or 36.7 percent an hour). The wage increases of the two remaining groups were considerably less and almost identical.

The coops, who began at the bottom with the lowest initial wage ($2.40), moved close to the top ($3.37), just below the voc eds ($3.43). The final wages of both these groups differed by a statistically insignificant $.06 an hour. An even smaller difference separated the coops and work study graduates, while the general academics trailed all the others.

Possibly a more accurate indication of the comparative labor market position of each group is given by Cohort II since it omits individuals who had too short a time in the labor force to obtain much work experience or to establish themselves. Once again, larger wage gains were achieved by the coops and voc eds than the others, and once again the overall spread in group wages was reduced.

The initial wage ranking of the Cohort II Group Wages was the same as that of Cohort I, but the final wage ranking differed. The voc eds again were in the lead ($3.55), and the general academics at the bottom ($3.35). However, the coops ($3.39) and work study group ($3.42) had changed places. The chief difference in the Cohort I and II was the clustering of all but the voc eds below the latter in a narrow range of only $.07 an hour. The voc eds were $.13 above the work study graduates, the highest group in the cluster. None of the intergroup differences in final wages were statistically significant.

Probably the most significant result was the wage convergence. In the case of the coops at least, their vocational training and working experience did not redound to their advantage as it might have for the voc eds. Both the latter's initial wage and final wage were above those of the coops. Still, it is difficult to escape the conclusions that employers appeared to treat all groups alike, irrespective of post-high school work experience. One reference is that reliance on coop programs as a source of screened labor might have been a way of some low-wage employers, who had few resources to invest in human capital, to continue in business.

3. Wage Changes and Worker Mobility. In all groups except the work study, there was a direct association between the number of inter-employers' moves and the absolute size of an individual's post-high school wage gain. The same relationship did not necessarily hold for the final wage level, because beginning wage levels were not directly related to the number of moves.

Excluding the work study group, those who remained on their initial post-high school job fared relatively poorly. Compared to other graduates of the same program, those who held just one job averaged the smallest wage gains, or at best, much less than the highest. However, the highly mobile did not always do better than the immobile. Not moving ruled out large wage gains, but frequent moving did not assure them either. It will be recalled that most separations from the first post-high school job were voluntary; in contrast, a majority of subsequent moves were precipitated by layoff or discharge.

The connection between the improvement in wages and mobility was the most apparent among the voc eds and general academics.[1] Members of both these groups who made successively more moves enjoyed successively larger wage gains. See Table 8-4. Voc eds holding just one job gained $.73 or 29.0 percent an hour compared to $.99 or 41.9 percent by those holding two jobs and $1.12 or 41.9 percent by those holding three. The gains by the comparable general academics were $.43 or 16.5 percent, $.60 or 23.3 percent, and $1.02 or 41.6 percent, respectively. The coops with the largest wage increases ($1.33 or 54.7 percent) made one job change.

4. Hours Worked per Week. In Cohort I, the coops averaged the most hours (39.8) on their post-high school jobs, the general academics, the least (35.7), a statistically significant difference of 2.1 hours.

Underlying these variations in weekly hours were comparatively large differences in the amount of part-time work among groups, and to some extent in the amount of employment in service-rendering sectors where the standard work-week was under 40 hours.[2] Overall, just 8.3 percent of all the Cohort I Coop post-high school jobs were part-time, compared to 15.3 percent, 21.3 percent, and 29.1 percent of those of the voc eds, work study and general academic students in that order. See Table 8-5.

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[1] The discussion is in terms of Cohort I, but applies also to Cohort II, with one exception. General academics who made one change did no better than those who made none.

[2] These average hours are from Cohort I and reflect the experiences of 293 sample members, of whom 96 were coops, 67 voc eds, 55 work study graduates, and 75 general academics.

Nearly all of the first post-high school jobs of the Cohort I coops were full-time.[1] In contrast, both initially and later, part-time work was much more prevalent among the other groups, especially the general academic. Only 6.2 percent of the first jobs of coops were part-time compared to 24.2 percent, 22.5 percent, and 37.7 percent, respectively, of those of the voc eds, work study students and the general academics. The difference among the coops and all but the general academics disappeared over time because of the shift of sample members into full-time work with subsequent job changes. See Table 8-6.

One possible explanation for the initial differences in part-time work was over continuation in jobs held as high school seniors. The jobs held by coops while in school were full-time, not part-time. In contrast, work study jobs were part-time because they represented alternate use of part of the school day. The voc eds and general academics, of course, had no released time, and thus even more likely to be limited to part-time work.

5. Labor Force Participation. There were differences in the number of weeks a sample member could be counted in the labor force following high school because of differences in the scheduled dates of the final interview.[2] Accordingly, the labor force participation rate was defined as the proportion of time available that was actually spent in the labor force between working or seeking work. The average number of weeks in the labor force of a group was derived by suming the number of weeks each individual in the group had spent in the labor force and dividing this total by the number of individuals. The average of the number of weeks available in the labor force, of weeks of employment and of weeks of unemployment were calculated in the same fashion. Group labor force participation rates, employment rates and unemployment rates were computed from group totals. For example, a group participation rate was obtained by summing the weeks available to each member of the group, summing the weeks each member had spent in the labor force, and dividing the second total by the first.

Table 8-7a shows the average number of weeks available to be in the labor force and spent in it by members of each group who held at least one post-high school job (and about which the pertinent information could be obtained from an interview). The table also gives the average number of weeks of employment, unemployment, and labor force withdrawal for each group. Table 8-7b provides the proportion of time spent in the labor force and out of it, and the proportion of time spent employed and unemployed for the same groups. These proportions can be interpreted as labor force participation, non-participation, employment and unemployment rates.

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[1] At least 35 hours a week.

[2] Final interviews were conducted between October and December 1973. An individual interviewed in early October thus would have three fewer months to be included in the labor force than an individual interviewed later in December. The post-high school survey period extended from the beginning of June 1972 through December 1973, a total of 19 months. It was assumed that early school leavers (those allowed to leave school in mid-May to go to work), actually began new post-high school working careers the first of June.

Three hundred and seven of the 310 sample members who worked for at least one employer following graduation had an average of 78.4 weeks available to be in the labor force after finishing high school. The coops averaged 77.4 weeks, the voc eds, 79.5; the work study graduates, 78.6; and the general academics, 78.5. The overall average of 78.4 potential weeks (roughly one and a half years) was distributed among 58.1 of employment, 5.1 of unemployment, and 15.3 of labor force withdrawal.

The overall participation rate was 81.2 percent. Excluding the general academic group, participation rates were strikingly similar. The biggest difference was not between the coops and the others but between the general academics and the others. The general academics had a participation rate of 75.0 percent compared to rates of each of the other groups of over 80.0 percent (coops, 84.6 percent; voc eds, 83.2 percent; and work study alumni, 81.3 percent). The weighted average for the three was 83.3 percent.

The only statistically significant differences, however, were between the coops and the general academics, and between the voc ed students and the general academics.[1] Compared to students without any vocational preparation or without any scheduled work experience, the coops were more likely to be in the labor force. But so were the regular vocational students. Vocational education, whether in a coop or in a regular trade curriculum, thus seemed more conducive to continuous labor force participation after graduation than non-trade curricula. The same conclusion could not be reached about the work study programs, despite the relatively high participation rate of their members.

Where the numbers were adequate (at least 10 in each category), participation rates of coop and voc ed graduates were compared by trade studied. There was no evidence of any systematic differences. The participation rates of the graduates of two trade programs, auto mechanic[2] and carpentry, were almost identical (81.7 percent for the former mechanic students, whether coop or regular vocational, 81.3 percent for the coop carpentry students, and 81.5 percent for the regular vocational). On the other hand, the rates of the graduates of two other trade programs were quite different. These were electrical and metal fabrication, the latter combining sheet metal, welding and machine shop. The rate for the coop electrical students was 96.1 percent, compared to 76.0 percent for the former voc ed students, and 82.3 percent for the former coop metal fabrication students compared to 93.1 percent for new voc ed counterparts. See Table 8-8.

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[1] The first at the 5 percent level, the second at the 10.

[2] Includes auto-body.

Prolonged labor force absence (defined as a minimum of 39 weeks, or three-quarters of a year) tended to take two forms, military service or full-time schooling. Of the 414 original sample members who completed high school[1] 15.9 percent left the labor force for these two purposes, 10.4 percent for the military and 5.4 percent for school. Most of the general academic withdrawals became full-time students (69.6 percent of the 23 who left). In contrast, all the coops who left joined the Armed Forces. The difference between the percentages of coops and of general academics to leave the labor market for either school or military service was statistically significant at the 10 percent level.

Military service or full-time school was a way of handling labor market difficulties or occupational indecision. The separate groups however differed with respect to the use of these. The general academics chose education, the others, the Armed Forces, undoubtedly with different consequences for new personal investment in human capital and later work.

The typical coop and voc ed student might have had a stronger preference for work or even a more certain occupational goal than his general curriculum counterpart. However, the choice of high school program might simply have reflected (or reinforced) these different propensities rather than have created them. Still, coops and voc ed alumni, by deciding not to pursue an academic program in high school automatically excluded themselves from higher education (or at least barred themselves from easy access to it). In contrast, the academic students had an edge; namely, enough academic courses to enter college or post-secondary technical schools full time.

6. Weeks of Employment and Employment Rates. The amount of employment

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[1] Or otherwise qualified to remain in the sample. The 414 figure omits 10 original sample members who did not graduate, one was institutionalized and two died.

also is discussed in absolute terms (average number of weeks) and relative terms (the employment rate), again using the experiences of those with at least one post-high school employer and those in Cohort I. Sample members with at least one job after completing high school averaged 58.1 weeks of employment. Reflecting their shorter time in the labor force, the general academics averaged the fewest weeks (53.9). The weeks of employment of the three other groups ranged from 61.1 for the voc ed to 57.5 for the work study. The coops fell midway, with an average of 59.4 weeks. The only statistically significant differences (at the 10 percent level) were between the coops and the general academics and between the voc eds and the general academics. See Table 8-9.

As might be expected because of their continuity in the sample, the pattern displayed by members of Cohort I was slightly different than that of the 310 with a minimum of one employer. In each Cohort I group, the average number of weeks was greater, and there was less difference among the coops (62.8 weeks), voc eds (64.7 weeks), and work study graduates (63.8).

Sample members with at least one post-high school job were employed on the average only three-quarters of the weeks available to be in the labor force. The coop graduates averaged 76.7 percent of their available time at work, the voc ed 77.8 percent, the work study 74.8 percent, and the general academic, 69.0 percent. This pattern paralleled that of absolute weeks of employment and of labor force participation. Similar to the findings for absolute weeks, the proportion of time spent at work by each group in Cohort I was greater than the respective proportions of each group whose members had at least one job. Again, the only important difference was between the percentage of time spent by the general academics (73.8 percent) and each of the other groups.

7. Unemployment. The 310 sample members who worked for at least one employer after completing high school averaged 5.1 weeks of unemployment out of the 63.1 weeks in the labor force. The coops had the most jobless weeks (6.0), the general academics and the voc eds, the least (4.6 and 4.2 weeks, respectively). Still, none of these deceptively large differences in average weeks of unemployment proved statistically significant. Weeks of unemployment (5.4) were somewhat higher for the 288 members of Cohort I, who averaged more weeks of labor force participation, as well as employment, than the 310 above. See Table 8-11.

The unemployment rate, that is, weeks of unemployment, as a proportion of weeks in the labor force,[1] was 8.1 percent for all those with a minimum of one post-high school job, and 6.9 percent for all those in Cohort I. In both instances, the coops had the highest rate. For those with at least one job, the coop rate was 9.2 percent compared to 8.0 percent for the former work study students, 7.9 percent for the general academic, and just 6.4 percent for the voc eds. The regular vocational graduates had the most favorable experience, not the coops. See Table 8-12.

Once again, there was a marked difference between the two kinds of work study programs, this time unfavorable to the one in the central city. The unemployment rate of its 17 sample members was 12.0 percent, almost double the 6.7 percent of the 37 members of the other work study programs.

The comparatively high coop unemployment rate was not due to a comparatively low employment rate but to a greater attachment to labor force. In Cohort I, it will be recalled, the coop employment rate was almost identical to that of the 400 voc ed and work study graduates and well above that of the general academic. The lower unemployment rate of these three groups reflected lower participation rates. If both groups had the same participation rates, the coop and voc ed unemployment rates would have differed only by 0.2 percentage points, not 2.8 percentage points.

Only the voc ed sample members with at least one post-high school employer had both a higher employment rate than their coop peers (77.8 percent versus 76.7 percent) and a lower unemployment rate (6.4 percent versus 9.2 percent). Even here, the coop participation rates were higher than the voc ed (84.6 percent versus 83.2 percent), and the 1.4 percentage point differential in these rates could account for half the 2.8 percentage point differential in unemployment rates.

Compared to young male high school graduates not in college and to male youths in general, the unemployment rates of all groups, except the central city work study, were not high. The unemployment rates as of October of the year of graduation of male high school graduates not attending college was 12.3 percent in 1972 and 9.4 percent in 1973. All U.S. males 18-19 had unemployment rates of 14.0 percent in 1972, and 11.4 percent in 1973; males 20-24 had rates of 9.2 percent in 1972, and 7.3 percent in 1973. The average age of our sample members was in the low twenties.

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[1] A group's unemployment rate was computed by totaling the number of weeks of unemployment of its members, and dividing that sum by new total number of weeks in the labor force.

It was hypothesized that non-construction trades and those studied on a coop basis would have lower unemployment rates than their opposite in voc ed programs. Table 8-13 presents the not very persuasive evidence: coop graduates of only one trade, carpentry, had a lower unemployment rate than their regular vocational counterparts, and the difference was not statistically significant. The graduates of the one non-construction trades, auto mechanic, had a lower rate than carpentry graduates, but a higher one than the two other trades, both in construction. Unquestionably, part of the explanation lies in the failure of many of the coop and voc ed graduates to remain in their trade. As noted earlier, coops were more likely to have done so than voc eds. Moreover, coops were less likely to hold white-collar jobs and more likely to hold blue-collar ones. The above results thus are distorted by the lack of occupational comparability, and they are further distorted by a lack of industry comparability. A higher proportion of coops worked in construction than did voc eds, while a higher proportion of the latter worked in retail trade.

Two dimensions of unemployment also were examined to determine its incidence. One was the number of sample members experiencing any unemployment, and the other was the number of spells of unemployment and their duration. As in the case of labor force withdrawal, only a minority of each group was ever jobless, although the minority usually was a large one. The coop record was no better and possibly somewhat worse than that of the others, but again, occupation and industry would seem partly responsible. In the larger group with at least one employer, 45.1 percent of the coops were unemployed at least once, 41.7 percent of voc eds, and 42.7 percent of the general academics, but just 31.1 percent of the work study. In Cohort I, the pattern was similar. See Table 8-14.

The number of spells of unemployment also varied little by group, except for the work study, whose members had somewhat fewer incidents than the others. Of those with at least one post-high school employer who experienced any unemployment, 60.9 percent of the coop had just one episode, compared to 63.3 percent of the voc eds, and 65.6 percent of the general academics, but 73.7 percent of the former work study students. The coops and voc eds who experienced some joblessness each averaged 1.5 spells. See Table 8-15. Here again, it was the work study group, not the coop group, that had the best record.

When unemployed, coops tended to remain out of work longer than members of other groups. See Table 8-16. Coops of Cohort I averaged 6.5 weeks of unemployment compared to 4.4 by the voc eds, 5.5 by the work study graduates, and 4.7 by the general academics. The average of only those actually unemployed, also was comparatively high for the coops: 13.4 weeks in contrast to the voc eds' 10.1, and the general academics' 11.0. Surprisingly high proportions of the members of each group accumulated at least two months unemployment. Of the Cohort I coops who suffered unemployment, nearly two-thirds (65.2 percent) totaled a minimum of two months. The proportions for the other groups were lower, but still represented substantial minorities: 43.3 percent of the unemployed voc eds, 47.4 percent of the work study students, and 46.7 percent of the general academics.

Corresponding to these long spells of unemployment and the substantial numbers in each group with many weeks of unemployment was the jump in the time needed to find later jobs after leaving or losing the initial post-high school one. Compared to this first job, the time needed at a minimum doubled for all groups. Coops with at least one job, took on the average 3.0 weeks to locate their first job, but 7.7 to find their second, and an average of 7.8 to find successive ones. Even the work study group, whose members needed the shortest time to find a first job (2.3 weeks), needed 5.6 for their next, and 5.9 for later ones. See Table 8-17. The proportions who had no intervening period of unemployment or else one of less than a week, dropped precipitously in all programs. See Table 8-18.

The unemployment experience of sample members was examined with respect to the proportion of time spent idle (the unemployment rate), and the incidence of unemployment; i.e., the number of spells of unemployment and their length. In neither of these aspects did coops appear to have a more favorable record than the other. However, some responsibility could be attributed to the greater likelihood of the coops working in industries and occupations subject to seasonal and cyclical fluctuations. Perhaps more revealing were the threads common to each group, irrespective of curriculum or program. These were group unemployment rates comparable to each other and to those of male youth in general, fairly long stretches of unemployment, greater difficulty finding jobs after the first; and the relatively widespread incidence of joblessness which affected substantial proportions of each group.

8. Job Satisfaction. Sample members indicated their degrees of satisfaction with each one of their post-high school jobs on the basis of a five-point scale on which a value of one represented "very satisfied" and a value of five, "not at all (satisfied)."[1] The ratings given each job were added and the total averaged to provide a measure of overall job satisfaction.

In contrast to the absence of meaningful intergroup differences or the existence of only limited ones with respect to wages and unemployment, the coops were significantly more satisfied with their jobs than the members of the other three groups. These differences were statistically significant at either the one percent or the five percent level. The coops rated their jobs an average of 1.98, a shade better than "quite satisfied." In contrast, the voc eds rated theirs 2.28; the work study students, 2.60; and the general academics, 2.44.[2] None of the differences among the three non-coop groups was statistically significant.

Substantially more, relatively, of the coops were very pleased with their jobs, compared to the members of other groups. Nearly three-quarters (74.1 percent) of the coops either were very satisfied or quite satisfied in contrast to 62.1 percent of the voc eds, 60.5 percent of the work study members, and 54.5 percent of the general academics. The proportions of each group who were only somewhat satisfied were coops, 18.5 percent; voc eds, 25.9 percent; work study alumni, 18.6 percent; and general academics, 32.7 percent.

These differences by group tended to hold for sample members who worked for just one post-high school employer and those who worked for two but not for those who worked for more. As the number of job changes increased, the degree of job satisfaction fell for the coops, but rose for the voc ed and the general academics.

The implications is that the coops were more likely than the voc eds and general academics to find a satisfactory job promptly after finishing high school. In contrast, these two non-coop groups, either having less working acquaintance with a prospective occupation or receiving less help finding a job, had to resort to a greater extent to trial-and-error methods. The higher degree of job satisfaction expressed by the coops, then, might be attributed to a greater likelihood of working at the start in a preferred occupation compared to other sample members, and perhaps also to a more realistic appreciation of what to expect from a job. Their work experience during high school might have deflated exaggerated expectations.

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[1] The other values were: 2-quite satisfied, 3-somewhat satisfied, and 4-not very satisfied.

[2] Based on answers of 237 sample members, of whom 81 were coops, 58 voc eds, 43 work study alumni, and 55 general academics.

9. Continuing in the Trade.[1] Probably contributing to the coops' greater job satisfaction, and perhaps additional evidence of it as well, was the substantial number of them working in the trade or in related jobs at the end of the survey.[2] Over half (54.5 percent) of all post-high school jobs held by coops having at least one such job were in or related to the trade studied in school, compared to 38.4 percent held by comparable voc ed graduates. The proportions were much smaller for work study (10.0 percent) and general academic graduates (13.5 percent).[3] See Table 8-20. Nearly the same difference in proportions was true of the final jobs of sample members.

As discussed in the preceding chapter, compared to members of other groups (with special attention to the voc eds), coops were more likely to begin their post-high school work careers in the trade taken in school. This finding was not considered particularly surprising in view of the prevalence of coop jobs continued from high school, and the central city requirement of a year's employment in the trade or related work to receive a diploma. However, compared to voc eds, the coops were more likely to remain in their trade as well, principally because the initial jobs of so much higher a proportion of the coops (68.0 percent) than the voc eds (35.7 percent) were in the trade. About the same proportions of those in each of these two groups had just one employer (39.6 percent and 40.3 percent, respectively). Evidently most of these immobile coops were content to remain in the trade, while most of the immobile voc eds were content to remain out of it. When changing jobs, however, coops were as likely as voc eds to move to unrelated jobs. But the proportion of coops and voc eds making at least one move (60.4 percent and 59.7 percent, respectively) and either leaving or entering a job in the trade could not redress the original imbalance.

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[1] The conclusions of this section hold whether based on the students' own definition of relatedness or the author's. The data used here are based on the latter definition.

[2] In this section, the phrase "working in the trade" is understood to include "in a related job" as well. Similarly, "trade related" includes "working in the trade."

[3] For work study graduates, trade-related courses refer to business programs (chiefly bookkeeping) and to industrial arts. For general academic graduates, trade-related refers to business and distributive education programs. Over half (57.1 percent) of the general academic students had such programs, but relatively few of the work study (just 30.0 percent).

The successive job moves of Cohort I coops and voc eds show that coops who changed employers just once (i.e., held two jobs) tended to abandon the new trade, but those who changed employers more often (i.e., held three or more jobs) tended to return to it after an interval of unrelated work. In contrast, voc eds, when changing employers were inclined to shift to trade-related jobs. Among coops making two or more moves, 59.3 percent of the initial jobs, 44.4 percent of the next, but 51.9 percent of subsequent ones were in the trade. The comparable voc ed proportions were 27.8 percent, 38.9 percent again. See Table 8-21 and Table 8-22.

10. Training by Employers. Employers gave coops and voc eds a greater amount of formal training and training of larger duration than other sample members. For example, the proportion of each group who said they had received some kind of training on their post-high school jobs taken as a whole, were coops, 62.3 percent; voc eds, 67.2 percent; work study graduates, 79.3 percent; and general academics, 56.8 percent. See Table 8-23. However, when account is taken of the quality of training received, as indicated by its formality and its duration, coops and voc eds were more likely than the others to be singled out for preferential treatment.

Coops and voc eds also were twice as likely to receive formal on-the-job training. It constituted 31.5 percent of the coops' training and 30.1 percent of the voc eds', as contrasted to only 13.3 percent and 7.9 percent of the work study graduates' and the general academics', respectively. However, informal training was the most prevalent form for all groups, amounting to over half in each case. It constituted the bulk of the informal training of the work study and general academic members (81.7 percent and 89.5 percent, respectively), but not the coop (60.1 percent) or the voc ed (57.8 percent). A further difference was that a relatively high fraction of the informal training of the work study members was a brief demonstration (49.0 percent). The comparable figures for the general academics was 35.3 percent and for coops almost as much (32.3 percent). Only in the case of the voc eds was a brief demonstration inconsequential (16.7 percent).

Unlike the work study and general academic groups, a substantial share of the training of both coops (38.9 percent) and voc eds (42.2 percent) was either formal on-the-job or formal classroom instruction. In addition, the duration of their training tended to be longer. The higher investment by employers in the training of these two groups is consistent with more favorable employer expectations about their trainability and employment stability. In turn, these characteristics might mirror previous training in school and collateral work experience. Apparently, employers regarded the coop mix of shop, related classroom instruction and supervised on-the-job training as equivalent to the voc ed combination of shop and related instruction, even though in actual hours the coops spent up to a third more time working than they gave up in shop instruction by not taking a regular vocational program.

11. Occupations and Industries in which Employed. The initial distinctively unique pattern of occupations and industries of the groups changed little during the year and a half following high school, with the exception of the voc ed. See Table 8-24 for the distribution of sample members by the occupations of first and post-high school jobs.

As noted in the prior chapter, the first post-high school jobs held by the coops were predominantly blue collar (88.3 percent), with the largest block trade-related (57.3 percent), although the occupant might not necessarily be working at the craftsman level. This pattern persisted, accompanied by a modest gain in the proportion of coops employed as semiskilled operatives rather than unskilled laborers. Thus, 88.5 percent of the coops' final jobs were manual and 60.4 percent craft-related. In addition, operative positions rose from 14.3 percent to 19.8 percent, and laboring fell from 16.5 percent to 8.3 percent.

The initial voc ed jobs also were heavily blue-collar (64.3 percent). However, 33.3 percent of the voc ed held tradesman jobs, about double the proportion held by the work study and general academic graduates. At the end of the survey period, the proportion of former voc ed students doing manual work had risen to 71.2 percent. The gain was in semiskilled and in craft-related positions. At the close of the post-high school period, then, there were two major differences between the coops and voc eds. Relatively more of the coops were in blue-collar jobs, especially those in the trades, and relatively fewer in white-collar, particularly clerical.

Over half (55.7 percent) of the work study positions at the beginning were blue-collar, chiefly semiskilled and unskilled, and almost the same proportion (56.6 percent) were at the end. The mix of general academic jobs shifted somewhat more than the work study, but did not lose its initial cast. Over half (52.7 percent) had been blue-collar, and at the end somewhat less than half (46.4 percent) were.

At the end of the period, the coop positions were still overwhelmingly blue-collar, and the voc ed had become so, but not as extensively. The work study and general academic positions remained largely as before, half or close to half blue-collar, and a substantial minority, white collar, mostly clerical. A major difference between coop and voc ed manual jobs on the one side, and those of the work study and general academic on the other continued, namely, the much higher proportion of the former in craft-related positions.

The initial post-high school jobs of a majority of all but the work study graduates were concentrated in a few industrial sectors. These sectors were not the same for each group. For the coops, durable goods manufacturing and construction were the key sources of employment, trailed by the service sector; for the voc eds, durable goods, retail trade, and services; for the general academics, chiefly retail trade, followed by services and durables. In contrast, the first work study jobs were relatively equally spread among finance, services, retail trade, construction and durable goods. Retail trade was an unimportant source only for the coops; construction, only for the work study graduates.

The industry distribution of the last coop jobs was almost identical to the distribution of the initial except for a relative increase in construction. Durables continued to account for a third of the coop jobs and services for about 12.5 percent, while construction now supplied 25.0 percent instead of the original 21.4 percent. Together these three factors furnished 70.8 percent of all coop final jobs, up from 66.0 percent initially. The voc ed distribution showed much the same stability, despite a relative decline in construction. See Table 8-25.

The greatest change occurred in the work study and general academic industry distributions. The work study had a relative drop in construction and trade (down to 10.9 percent from 15.7 percent, and down to 12.7 percent from 17.1 percent, respectively), and a modest relative gain in both durable and non-durable goods, and in public administration. The general academic distribution showed a relative decline in retail trade (from 35.2 percent to 28.0 percent) and a relative rise in services(from 15.4 percent to 21.3 percent). These two sectors still provided about half of general academic employment. See Table 8-26.

For the sample as a whole, the largest industrial change was a decline in the proportion of retail trade positions (from 21.6 percent to 16.7 percent), accompanied by marginal rises in the proportions in construction, durables and services. Otherwise, the overall industrial profile was much as before.

Table 8-1. Average Hourly Wage of Sample Members During the Post-High School Period, by Group and by Cohort.

	Cohort I	Cohort II
Coop	$2.86	$2.87
	(95)	(89)
Regular Vocational	2.97	3.04
	(66)	(60)
Work Study	3.07	3.00
	(53)	(47)
General Academic	2.87	2.92
	(68)	(56)
Overall Average	2.93	2.95
	(282)	(252)
Maximum	3.07	3.04
Minimum	2.86	2.87
Difference	.21	.7
	7.3%	5.9%

Table 8-2. Average Post-High School Wages[a] of Coop and Regular Vocational Sample Members by Trade Studied.

	(1) Coop		(2) Regular		
Trade Studied	**Wage**	**Rank**	**Wage**	**Rank**	**Wage Difference (2)-(1)**
Auto Body	2.78 (2,2)	(2)	2.37 (4,2)	(7)	.41
Auto Mechanic	2.64 (12,11)	(3)	2.81 (13,11)	(3)	-.17
Cabinet-Making	2.40 (5,4)	(7)	2.45 (12,8)	(6)	.05
Carpentry	2.38	(8)	3.62	(1)	-.24
Electrical	2.54 (21,20)	(6)	2.77 (11,9)	(4)	-.23
Electronics	3.12 (2,2)	(1)	2.34 (10,7)	(8)	.78
Machine Shop	2.59 (29,26)	(5)	2.84 (12,9)	(2)	-.25
Sheet Metal	2.62 (18,18)	(4)	2.60 (12,12)	(5)	.02
Overall Average	2.59 (93,86)		2.72 (80,64)		

[a] Weighted average of two separate averages: (1) the average on the wage of the first post-high school job; and, (2) the average of subsequent ones. The number of persons with reported wages on the first job and reported subsequent wages on later ones could vary because of losses from the sample. The two numbers in parentheses are the number with reported average wages on the initial job and the number with reported wages on subsequent ones.

Table 8-3. Post-High School Beginning and Final Average Wages[a] of all Sample Members[b], and of Cohort I and Cohort II Sample Members, by Group.

	All Sample Members				Cohort I				Cohort II			
Group	Beginning Wage	Final Wage	Change		Beginning Wage	Final Wage	Change		Beginning Wage	Final Wage	Change	
			Abs.	Percent			Abs.	Percent			Abs.	Percent
Coop	2.40 (102)	3.37 (96)	.97	40.3	2.40 (96)	3.37 (96)	.97	40.3	2.39 (90)	3.39 (90)	1.00	41
Voc Ed	2.49 (83)	3.43 (65)	.94	37.8	2.51 (66)	3.43 (65)	.92	36.7	2.55 (60)	3.55 (59)	1.00	39
Work Study	2.67 (70)	3.33 (52)	.66	24.7	2.64 (55)	3.33 (52)	.69	26.1	2.68 (50)	3.42 (47)	.74	27
General Academic	2.61 (88)	3.22 (70)	.64	24.5	2.54 (74)	3.22 (70)	.68	26.6	2.55 (61)	3.35 (56)	.80	31
Overall Average	2.53 (343)	3.34 (28[illegible])	.81	32.0	2.51 (291)	3.34 (283)	.83	33.1	2.52 (261)	3.43 (252)	.91	36
Spread												
Absolute	.27	.21	-	-	.24	.2[illegible]	-	-	.29	.20	-	-
Percentage	11.2	5.5	-	-	10.0	6.5	-	-	12.1	6.0	-	-

[a] Beginning wage is the first wage on the First Post-High School Job; the Final Wage is the last one on the Last Post-High School Job.

[b] With whom an initial interview and the First Post-High School Interview were conducted, and who held at least one job after leaving school.

Table 8-4. Average Beginning and Final Wages and Average Wage Changes by the Number of Post-High School Jobs Held by Sample Members, by Group and by Cohort.

Number of Jobs Held by Group	Cohort I Beginning Wage	Cohort I Final Wage	Cohort I Change Abs.	Cohort I Change Percent	Cohort II Beginning Wage	Cohort II Final Wage	Cohort II Change Abs.	Cohort II Change Percent
Coops 1	2.38 (38)	3.17 (38)	.79	33.2	2.34 (33)	3.22 (33)	.88	37.6
2	2.43 (31)	3.76 (31)	1.33	54.7	2.45 (30)	3.76 (30)	1.31	53.5
3 or more	2.38 (27)	3.20 (27)	.82	34.5	2.38 (27)	3.20 (27)	.82	34.5
Group Average	2.40 (96)	3.37 (96)	.97	40.4	2.39 (90)	3.39 (90)	1.00	41.8
Regular Vocational								
1	2.52 (26)	3.25 (26)	.73	29.0	2.60 (22)	3.46 (22)	.86	33.1
2	2.36 (22)	3.35 (22)	.99	41.9	2.38 (21)	3.39 (21)	1.01	42.4
3 or more	2.67 (18)	3.79 (17)	1.12	41.9	2.69 (17)	3.90 (16)	1.21	45.0
Group Average	2.51 (66)	3.43 (65)	.92	36.7	2.55 (60)	3.55 (59)	1.00	39.2
Work Study								
1	2.66 (27)	3.30 (25)	.64	24.1	2.71 (23)	3.46 (21)	.75	27.7
2	2.63 (17)	3.40 (17)	.77	29.3	2.68 (16)	3.44 (16)	.76	28.4
3 or more	2.62 (11)	3.31 (10)	.70	26.7	2.62 (11)	3.32 (10)	.70	26.7
Group Average	2.64 (55)	3.33 (52)	.69	26.1	2.68 (50)	3.42 (47)	.74	27.6
General Academic								
1	2.61 (24)	3.04 (24)	.43	16.5	2.65 (14)	3.34 (14)	.69	26.0
2	2.58 (24)	3.18 (25)	.60	23.3	2.60 (21)	3.24 (21)	.64	24.6
3 or more	2.45 (26)	3.47 (21)	1.02	41.6	2.45 (26)	3.47 (21)	1.02	41.6
Group Average	2.54 (74)	3.22 (70)	.68	26.8	2.55 (61)	3.35 (56)	.80	31.4

Table 8-5. Distribution by Weekly Hours Worked of All Post-High School Jobs Held by Sample Members by Group.[a]

Weekly Hours	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	All
Part-Time					
1-16	3 (1.7%)	5 (4.0%)	2 (2.1%)	12 (9.0%)	22 (4.1%)
17-34	12 (6.6%)	14 (11.3%)	18 (19.1%)	27 (20.1%)	71 (13.3%)
	15 (83%)	19 (15.3%)	20 (21.3%)	39 (29.1%)	93 (17.4%)
Full-Time					
35-39	10 (5.5%)	5 (4.0%)	15 (16.0%)	12 (9.0%)	42 (7.9%)
40	120 (66.3%)	67 (54.0%)	46 (48.9%)	58 (43.3%)	291 (54.6%)
Over 40	36 (19.9%)	33 (26.6%)	13 (13.8%)	25 (18.7%)	107 (20.1%)
Subtotal	166 (91.7%)	105 (84.7%)	74 (78.7%)	95 (70.9%)	440 (82.6%)
All Jobs	181 (100.0%)	124 (100.0%)	94 (100.0%)	134 (100.0%)	533 (100.0%)

[a] Jobs of 277 members of Cohort I; 96 were coops, 66 voc eds, 55 work study graduates, and 61 general academics.

Table 8-6. Distribution by Weekly Hours Worked of First and Final Post-High School Jobs of Sample Members, by Group.[a]

First Jobs

Weekly Hours	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Under 35	6 (6.2%)	16 (24.2%)	14 (25.5%)	23 (37.7%)	59 (21.2%)
35-39	3 (31%)	2 (3.0%)	11 (20.0%)	4 (6.6%)	20 (7.2%)
40 and over	87 (90.6%)	48 (72.7%)	30 (54.5%)	34 (55.7%)	199 (71.6%)
Total	96 (100.0%)	66 (100.0%)	55 (100.0%)	61 (100.0%)	278 (100.0%)

Final Jobs

Under 35	4 (4.3%)	8 (11.9%)	3 (5.5%)	18 (24.3%)	33 (11.3%)
35-39	5 (5.3%)	2 (3.0%)	12 (21.8%)	8 (10.8%)	27 (9.3%)
40 and over	86 (90.5%)	57 (85.1%)	40 (727%)	48 (64.9%)	231 (79.4%)
Total	95 (100.0%)	67 (100.0%)	55 (100.0%)	74 (100.0%)	291 (100.0%)

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[a] Jobs held by Members of Cohort I.

Table 8-7a Average Number of Weeks Available to Be in the Labor Force, Spent in Labor Force, and Spent Employed, Unemployed, and Not in the Labor Force by Sample Members with at Least One Post-High School Job, by Program.

Program	Available to Be in Labor Force	In Labor Force Total	Employed	Unemployed	Not In Labor Force
(1) Coop	77.4 (101)	65.4 (102)	59.4 (102)	6.0 (102)	12.2 (102)
(2) Regular Vocational	79.5 (71)	65.3 (72)	61.1 (72)	4.2 (72)	13.2 (72)
(3) Work Study	78.6 (60)	62.6 (61)	57.5 (61)	5.0 (61)	15.0 (61)
(4) General Academic	78.5 (75)	58.5 (75)	53.9 (75)	4.6 (75)	19.9 (75)
Total	78.4 (307)	63.1 (310)	58.1 (310)	5.1 (310)	15.3 (310)

Table 8-7b Percentage of Available Time Spent in Labor Force, and Spent Employed, Unemployed, and Not in the Labor Force by Sample Members with at Least One Post-High School Job, by Program.

Program	Available to Be in Labor Force	In Labor Force Total	Employed	Unemployed	Not In Labor Force
(1) Coop	100.0 (101)	84.6 (101)	76.7 (101)	9.2 (101)	15.4 (101)
(2) Regular Vocational	100.0 (71)	83.2 (71)	77.8 (71)	6.4 (71)	16.8 (71)
(3) Work Study	100.0 (60)	81.3 (60)	74.8 (60)	8.0 (60)	18.7 (60)
(4) General Academic	100.0 (75)	75.0 (75)	69.0 (75)	7.9 (75)	25.0 (75)
Total	100.0 (307)	81.2 (307)	74.7 (307)	8.1 (307)	18.8 (307)

Table 8-8. Percentage of Available Time Spent in the Labor Force by Sample Members in Cohort I,by Selected Trade and Program.

Trade	(1) Coop	(2) Regular Vocational	Total
Auto Mechanic	81.7 (14)	81.7 (13)	81.7 (27)
Carpentry	81.3 (14)	81.5 (15)	81.4 (29)
Electrical	96.1 (22)	76.0 (19)	86.8 (41)
Metal Fabrication	82.3 (46)	91.3 (22)	85.8 (68)
	85.2 (96)	83.1 (69)	84.6 (165)

241

Table 8-9. Average Number of Weeks of Employment of Sample Members with at Least One Post-High School Job and of Sample Members of Cohort I, by Program.

Program	Those with at Least One Job	Cohort I	Difference
(1) Coop	59.4 (102)	62.8 (95)	3.4
(2) Regular Vocational	61.1 (72)	64.7 (68)	3.6
(3) Work Study	57.5 (61)	63.8 (55)	6.3
(4) General Academic	53.9 (75)	57.8 (70)	3.9
Total	58.1 (310)	62.2 (288)	4.1

Table 8-10. Employment Rates[a] of Sample Members with at Least One Post-High School Job and Sample Members of Cohort I, by Program.

Program	Those with at Least One Job[b]	Cohort I	Difference (in percentage points)
(1) Coop	76.7 (101)	81.3 (95)	4.6
(2) Regular Vocational	77.8 (71)	81.5 (68)	3.7
(3) Work Study	74.8 (60)	81.5 (55)	6.7
(4) General Academic	69.0 (75)	73.8 (70)	4.8
Total	74.7 (307)	79.5 (288)	4.8

[a] The sum of a group's weeks of employment divided by the sum of its weeks available.

[b] Rates omit three individuals for whom weeks available were not available.

Table 8-11. Average Number of Weeks of Unemployment of Sample Members with at Least One Post-High School Job and of Cohort I Sample Members, by Program.

Program	Those with at Least One Job	Cohort I Members
(1) Coop	6.0 (102)	6.5 (95)
(2) Regular Vocational	4.2 (72)	4.4 (68)
(3) Work Study	5.0 (61)	5.5 (55)
(4) General Academic	4.6 (75)	4.7 (70)
Total	5.1 (310)	5.4 (288)

Table 8-12. Unemployment Rates of Sample Members with at Least One Post-High School Job and of Cohort I Sample Members by Program.

Program	Those with at Least One Job	Cohort I Members
(1) Coop	9.2 (101)	8.4 (95)
(2) Regular Vocational	6.4 (71)	5.6 (68)
(3) Work Study	8.0 (60)	7.1 (55)
(4) General Academic	7.9 (75)	6.0 (70)
Total	8.1 (307)	6.9 (288)

Table 8-13. Unemployment Rate of Sample Members in Cohort I by Selected Trade and Program.

Trade	(1) Coop	(2) Regular Vocational	Total
Auto Mechanic	12.8 (14)	4.6 (13)	8.8 (27)
Carpentry	8.5 (12)	12.6 (14)	10.7 (26)
Electrical	8.2 (22)	7.3 (18)	7.8 (40)
Metal Fabrication	9.4 (44)	3.8 (21)	7.6 (65)
Total	9.5 (92)	6.8 (66)	8.4 (158)

Table 8-14. Number and Percentage of Sample Members with at Least One Post-High School Job, and Sample Members in Cohort I Who Experienced No or Some Unemployment, by Program.

With at Least One Post-High School Job	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
No Unemployment	56 (54.9%)	42 (58.3%)	42 (68.9%)	43 (57.3%)	183 (59.0%)
Some Unemployment	46 (45.1%)	30 (41.7%)	19 (31.1%)	32 (42.7%)	127 (41.0%)
Total	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
Cohort I					
No Unemployment	49 (51.5%)	38 (55.9%)	36 (65.5%)	40 (57.1%)	163 (56.6%)
Some Unemployment	46 (48.4%)	30 (44.1%)	19 (34.5%)	30 (42.9%)	125 (43.4%)
Total	95 (100.0%)	68 (100.0%)	55 (100.0%)	70 (100.0%)	288 (100.0%)

Table 8-15. Distribution of Spells of Unemployment Experience by Sample Members with at Least One Post-High School Job, by Program.[a]

Number of Spells	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic[a]	Total
1	28 (60.9%)	19 (63.3%)	14 (73.7%)	21 (65.6%)	82 (64.6%)
2	12 (26.1%)	8 (26.7%)	4 (21.1%)	8 (25.0%)	32 (25.2%)
3 or more	6 (13.0%)	3 (10.0%)	1 (5.3%)	3 (9.4%)	13 (10.2%)
Total	46 (100.0%)	30 (100.0%)	19 (100.0%)	32 (100.0%)	127 (100.0%)
Average	1.5	1.5	1.3	1.4	1.5

[a] The Cohort I distribution was identical, except for the general academics. Their distribution was: 1 spell, 20 (61.7 percent); 2 spells, 7 (23.3 percent); and 3 or more spells, 3 (10.0 percent). The average number of spells was 1.4.

Table 8-16. Distribution of Sample Members of Cohort I by Weeks of Unemployment, by Program.

Weeks	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
0	49 (51.5%)	38 (55.9%)	36 (65.5%)	40 (57.1%)	163 (56.6%)
1	2 (2.1%)	4 (5.9%)	2 (3.6%)	0 (0.0%)	8 (2.8%)
2	5 (5.3%)	3 (4.4%)	1 (1.8%)	4 (5.7%)	13 (4.5%)
3-4	4 (4.2%)	5 (7.4%)	5 (9.1%)	6 (8.6%)	20 (6.9%)
5-8	5 (5.3%)	5 (7.4%)	2 (3.6%)	6 (8.6%)	18 (6.2%)
9-13	14 (14.7%)	6 (8.8%)	1 (1.8%)	6 (8.6%)	27 (9.4%)
14-26	10 (10.5%)	5 (7.4%)	2 (3.6%)	5 (7.1%)	22 (7.6%)
27-39	4 (4.2%)	2 (2.9%)	3 (5.5%)	3 (4.3%)	12 (4.2%)
40-52	2 (2.1%)	0 (0.0%)	3 (5.5%)	0 (0.0%)	5 (1.7%)
Total	95 (100.0%)	68 (100.0%)	55 (100.0%)	70 (100.0%)	288 (100.0%)
Average	6.5	4.4	5.5	4.7	5.4

Table 8-17. Average Number of Weeks Needed to Find Successive Jobs, by Sample Members with at Least One Post-High School Job, by Program.a)

Program	First Job	Second Job	Later Jobs	Total
(1) Coop	3.0 (103)	7.7 (68)	7.8 (31)	5.3 (200)
(2) Regular Vocational	2.8 (84)	6.9 (54)	13.8 (22)	5.7 (160)
(3) Work Study	2.3 (70)	5.6 (42)	5.9 (15)	3.8 (127)
(4) General Academic	3.4 (91)	10.3 (71)	7.7 (35)	6.7 (197)
Total	2.9 (348)	7.4 (235)	8.8 (103)	5.5 (686)

a) Data includes those with less than a week of intervening unemployment, or none at all.

Table 8-18. Number and Percentage of Sample Members with at Least One Post-High School Job Who Changed Jobs without a Period of Unemployment,a) by Program and by Successive Job.

Program	First Job	Second Job	Later Jobs
(1) Coop (103)	78 (75.7%)	28 (27.2%)	10 (9.7%)
(2) Regular Vocational (84)	61 (72.6%)	23 (27.4%)	4 (4.8%)
(3) Work Study (70)	60 (85.7%)	23 (32.9%)	5 (7.1%)
(4) General Academic (91)	64 (70.3%)	32 (35.2%)	15 (16.5%)
Total (348)			

a) Includes those with less than a week of unemployment. Percentages are based on those changing jobs, not all group members. The number of persons in each group who had a second job was as follows: Coop, 68; voc ed, 54; work study, 42; and general academics, 71. The number who had a third and a subsequent job was as follows: Coop, 31; voc ed, 22; work study, 15; and general academic, 35.

Table 8-19. Distribution of Sample Members by Job Satisfaction Ratings Given to Post-High School Jobs, by Program.

Degree of Satisfaction	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academics	Total
(1) Very	31 (38.3%)	15 (25.9%)	7 (16.3%)	12 (21.8%)	65 (27.4%)
(2) Quite	29 (35.8%)	21 (36.2%)	19 (44.2%)	18 (32.7%)	87 (36.7%)
(3) Somewhat	15 (18.5%)	15 (25.9%)	8 (18.6%)	18 (32.7%)	56 (23.6%)
(4) Not Very	4 (4.9%)	5 (8.6%)	3 (7.0%)	3 (5.5%)	15 (6.3%)
(5) Not at All	2 (2.5%)	2 (3.4%)	6 (14.0%)	4 (7.3%)	14 (5.9%)
Total	81 (100.0%)	58 (100.0%)	43 (100.0%)	55 (100.0%)	237 (100.0%)
Average	1.98	2.28	2.60	2.44	2.27

Table 8-20. Distribution of Sample Members[a] Employed in the Trade or in Trade-related Jobs, by Successive Post-High School Job and by Program.

	Successive Post-High School Job[b]					
	First	Second	Third and Later	Subtotal Second and Later	All Final Jobs	All Jobs
(1) Coops	70 (68.0%)	20 (32.8%)	14 (51.9%)	34 (38.6%)	53 (55.2%)	104 (54.5%)
(2) Regular Vocational	30 (35.7%)	21 (44.7%)	7 (35.0%)	28 (41.7%)	27 (40.3%)	58 (38.4%)
(3) Work Study[c]	3 (14.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (7.7%)	3 (10.8%)
(4) General Academic[c]	8 (15.4%)	4 (13.3%)	1 (7.1%)	6 (11.4%)	6 (15.0%)	13 (13.5%)
Total	111 (42.7%)	45 (31.0%)	22 (34.9%)	67 (32.2%)	87 (40.3%)	178 (38.0%)

[a] With at least one post-high school job.

[b] The total number of jobs held were: first, 260, second, 145; third and later, 63; all, 468.

[c] Jobs include only those of individuals with industrial arts, business or distributive education programs.

Table 8-21. Distribution of Cohort I Sample Members Employed in the Trade or in Trade-Related Jobs, by Number of Post-High School Jobs Held and by Program.

	Number of Jobs Held[a]						
	One	Two		Three or More			Total
	First	First	Second	First	Second	Third and Later	Jobs
(1) Coop	31 (81.6%)	19 (61.3%)	8 (26.7%)	16 (59.3%)	12 (44.4%)	14 (51.9%)	100 (55.2%)
(2) Regular Vocational	10 (37.0%)	8 (36.4%)	10 (45.5%)	5 (27.8%)	7 (38.9%)	7 (38.9%)	47 (37.6%)
(3) Work Study[b]	1 (11.1%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	2 (11.1%)
(4) General Academic[b]	3 (18.8%)	3 (25.0%)	2 (16.7%)	2 (16.7%)	2 (16.7%)	1 (8.3%)	13 (17.1%)
Total	45 (50.0%)	30 (44.1%)	20 (29.4%)	24 (41.4%)	21 (36.2%)	22 (37.9%)	162 (40.5%)

[a] The number of individuals with one job was as follows: coop, 38; regular vocational, 27; work study, 27; and general academic, 24. The number with two jobs: coop, 31; regular vocational, 22; work study, 17; and general academic, 25. The number with three jobs: coops, 27; regular vocational, 18; work study, 11; and general academic, 26. The total number of jobs held would be equal to the number of individuals multiplied by the number of jobs held.

[b] Jobs include only those of individuals who had taken industrial arts, business or distributive education programs.

Table 8-22. Distribution of Cohort I Sample Members by Whether Their Final Post-High School Jobs Were in the Trade Studied in School or Related to It, by the Number of Post-High School Jobs Held, and by Program.

	One Final Job			Two Final Job		
	In Trade	Not In Trade	Total	In Trade	Not In Trade	Total
(1) Coop	31 (81.6%)	7 (18.4%)	38 (100.0%)	8 (25.8%)	23 (74.2%)	31 (100.0%)
(2) Regular Vocational	10 (37.0%)	17 (63.0%)	27 (100.0%)	10 (45.4%)	12 (54.5%)	22 (100.0%)
(3) Work Study a)	1 (11.1%)	8 (88.9%)	9 (100.0%)	0 (0.0%)	3 (100.0%)	3 (100.0%)
(4) General Academic a)	3 (18.8%)	13 (81.2%)	16 (100.0%)	2 (16.7%)	10 (83.3%)	12 (100.0%)
Total	45 (50.0%)	45 (50.0%)	90 (100.0%)	20 (29.4%)	48 (70.6%)	68 (100.0%)

	Three Final Job			Total Final Job		
	In Trade	Not In Trade	Total	In Trade	Not In Trade	Total
(1) Coop	14 (51.9%)	13 (48.14)	27 (100.0%)	53 (55.2%)	43 (44.8%)	96 (100.0%)
(2) Regular Vocational	7 (38.9%)	11 (61.1%)	18 (100.0%)	27 (40.3%)	40 (59.7%)	67 (100.0%)
(3) Work Study a)	0 (0.0%)	1 (100.0%)	1 (100.0%)	1 (7.7%)	12 (92.3%)	13 (100.0%)
(4) General Academic a)	1 (8.3%)	11 (91.7%)	12 (100.0%)	6 (15.0%)	34 (85.0%)	40 (100.0%)
Total	22 (32.9%)	36 (62.1%)	58 (100.0%)	87 (40.2%)	129 (59.7%)	216 (100.0%)

a) Includes only individuals who had taken industrial arts, business, or distributive education programs.

Table 8-23. Distribution of Sample Members by Whether They Were Receiving Training on their Post-High School Jobs, by Program.

Receiving Training First Job	(1) Coop	(2) Regular Vocational	(3) Work Study	(4) General Academic	Total
Yes	16 (66.7%)	7 (70.0%)	11 (68.8%)	6 (54.5%)	40 (65.6%)
No	8 (33.3%)	3 (30.0%)	5 (31.2%)	5 (45.5%)	21 (34.4%)
Subtotal	24 (100.0%)	10 (100.0%)	16 (100.0%)	11 (100.0%)	61 (100.0%)
Later Jobs					
Yes	88 (61.5%)	75 (67.0%)	54 (81.8%)	77 (57.0%)	294 (56.9%)
No	55 (38.5%)	37 (33.0%)	12 (18.2%)	58 (43.0%)	162 (31.3%)
Subtotal	143 (100.0%)	112 (100.0%)	66 (100.0%)	135 (100.0%)	456 (100.0%)
All Jobs					
Yes	104 (62.3%)	82 (67.2%)	65 (79.3%)	83 (56.8%)	334 (64.6%)
No	63 (37.7%)	40 (32.8%)	17 (20.7%)	63 (43.2%)	183 (35.4%)
Total	167 (100.0%)	122 (100.0%)	82 (100.0%)	146 (100.0%)	517 (100.0%)

Table 8-24. Distribution of Sample Members by the Occupation of their First and Last Post-High School Job,[a] by Group.[b]

Occupations	(1) Coop		(2) Regular Vocational		(3) Work Study		(4) General Academic		Total	
	First	Last	First	Last	First	Last	First	Last	First	Last
White-Collar										
Professional and managerial[c]	0 (0.0%)	0 (0.0%)	5 (6.0%)	2 (3.0%)	2 (2.9%)	1 (1.9%)	5 (5.5%)	9 (13.0%)	12 (3.4%)	12 (4.2%)
Clerical and Sales	6 (5.8%)	3 (3.1%)	9 (10.7%)	11 (16.7%)	19 (27.1%)	17 (32.1%)	21 (23.1%)	16 (23.2%)	55 (15.8%)	47 (16.5%)
Subtotal[d]	6 (5.8%)	3 (3.1%)	14 (16.7%)	13 (19.7%)	21 (29.9%)	18 (34.0%)	26 (28.6%)	25 (36.2%)	67 (19.3%)	59 (20.8%)
Blue-Collar										
Craft	59 (57.3%)	58 (60.4%)	28 (33.3%)	25 (37.9%)	11 (15.7%)	9 (17.0%)	11 (12.1%)	11 (15.9%)	109 (31.3%)	103 (36.3%)
Operative	15 (14.5%)	19 (19.8%)	16 (19.1%)	17 (25.8%)	13 (18.5%)	7 (13.2%)	15 (16.5%)	12 (17.4%)	59 (17.0%)	55 (19.4%)
Laborer	17 (16.5%)	8 (8.3%)	10 (11.9%)	5 (7.6%)	15 (21.4%)	14 (26.4%)	22 (24.2%)	9 (13.0%)	64 (18.4%)	36 (12.7%)
Subtotal[d]	91 (88.3%)	85 (88.5%)	54 (64.3%)	47 (71.2%)	39 (55.7%)	30 (56.6%)	48 (52.7%)	32 (46.4%)	232 (66.7%)	194 (68.3%)
Service										
Unskilled[e]	6 (5.8%)	6 (6.2%)	10 (11.9%)	3 (4.5%)	8 (11.4%)	4 (7.5%)	11 (12.1%)	9 (13.0%)	35 (00.1%)	22 (7.7%)
Other	0 (0.0%)	2 (2.1%)	6 (7.1%)	3 (4.5%)	2 (2.9%)	1 (1.9%)	6 (6.6%)	3 (4.3%)	14 (4.0%)	9 (3.2%)
Subtotal[d]	6 (5.8%)	8 (8.3%)	16 (19.0%)	6 (9.1%)	10 (14.3%)	5 (9.4%)	17 (18.7%)	12 (17.4%)	49 (14.1%)	31 (10.9%)
Total[b]	103 100%	96 100%	84 100%	66 100%	70 100%	53 100%	91 100%	69 100%	348 100%	284 100%

[a] The last occupation refers to the final job title on the final job, as distinct from the beginning job title on the final job. Where both titles were the same, of course, there would be no difference.

[b] Total for first and last jobs are not the same because of loss of members from sample and exclusion of those not in the labor force.

[c] Professional includes technical; managerial, employed and self-employed.

[d] Subtotals do not always equal sum of components due to rounding off.

[e] Cleaning; busboy, dishwashing and other unskilled food service; and similar occupations.

Table 8-25. Distribution of Coop and Regular Vocational Sample Members by Industry of First and Last Post-High School Job Ranked by Proportion of Employment Provided on First Jobs.

	(1) Coop			(2) Regular Vocational	
Industry	First	Last	Industry	First	Last
Durable goods	33 (32.0%)	32 (33.0%)	Durable Goods	22 (26.2%)	19 (28.4%)
Construction	22 (21.4%)	24 (25.0%)	Retail Trade	22 (26.2%)	14 (20.9%)
Services	13 (12.6%)	12 (12.5%)	Services	15 (17.9%)	13 (19.4%)
Subtotal	68 (66.0%)	68 (70.8%)	Subtotal	59 (70.2%)	46 (68.7%)
All Others	35 (34.0%)	28 (29.2%)	All Others	25 (29.8%)	21 (31.3%)
Total	103 (100.0%)	96 (100.0%)		84 (100.0%)	67 (100.0%)

Table 8-26. Distribution of Work Study and General Academic Sample Members by Industry of First and Last Post-High School Job Ranked by Proportion of Employment Provided on First Jobs.

	(1) Work Study			(2) General Academic	
Industry	First	Last	Industry	First	Last
Finance[a]	13 (18.6%)	11 (20.0%)	Retail Trade	32 (35.2%)	21 (28.0%)
Services	13 (18.6%)	9 (16.4%)	Services	14 (15.4%	16 (21.3%)
Retail Trade	12 (17.1%)	7 (12.7%)	Durable Goods	12 (13.2%)	9 (12.0%)
Construction	11 (15.7%)	6[b] (10.9%)	Construction	7 (7.7%)	/4/[d]
Durable goods	9 (12.9%)	9 (16.4%)	Transportation[c]	/4/[d]	9
Subtotal	58 (82.9%)	42 (76.4%)	Subtotal	65[d] (71.4%)	55[d] (73.3%)
All Others	12 (17.1%)	13 (23.6%)	All Others	26 (28.6%)	20 (26.7%)
Total	70 (100.0%)	55 (100.0%)		91 (100.0%)	75 (100.0%)

[a] Finance, insurance and real estate

[b] Included in subtotal, because construction was fifth in the number of final jobs provided.

[c] Transportation, communications and public utilities

[d] Transportation not included in subtotal but in "all others," because it was not among the top four suppliers of first jobs. In addition to transportation four other industrials furnished the same number of first jobs. With respect to final jobs nondurables furnished the same number as construction. Morever, finance, insurance and real estate accounted for five jobs, one more than either nondurables or construction.

Chapter IX

EMPLOYMENT AND EDUCATIONAL PLANS

During the final interview, the students were asked a series of questions regarding their employment and educational plans. The final interview questionnaire also contained a series of questions designed to provide summary information on the educational experiences of the students since their graduation from high school. In addition, the interview provided students a final opportunity to comment upon the strengths and limitations of the high school programs in which they had been enrolled. The students were asked to assess the overall effectiveness of their high school programs in preparing them for work, and to provide recommendations for improving the future effectiveness of such programs. This chapter of the study will provide both a description and analysis of the responses of the students in the various high school programs to these questions.

Employment Plans

Those students who were employed at the time of the final interview were asked to outline their job plans for the forthcoming year.[1] Of the 227 students responding to this question, 155 (68.3%) indicated that they planned to remain employed in their current jobs during the entire forthcoming year. Approximately one-fourth of the respondents stated that they did not expect to remain in their current jobs for another year, and 18 or 7.9% were uncertain.

Those respondents who had been enrolled in the coop (72.2%) and work study programs (76.2%) were more likely to mention that they planned to remain in their current jobs for another year than those respondents who had participated in either regular vocational (63.6%) or general academic programs (60.8%) during high school. The differences in the distributions of responses were not, however, statistically significant at the .05 level.

Those respondents who stated that they did plan to continue being employed on their current jobs for another year were asked to estimate how much longer they anticipated remaining with their existing jobs. Of the 155 respondents, 91 or 58.7% could not provide a specific estimate of the additional length of time beyond the next year that they expected to remain on their current jobs. Approximately one-fourth of these respondents stated that they did not expect to remain on their current jobs for two more years while another one-eighth of the students claimed that they would continue with their current jobs for two or more years. Only seven of these 155 respondents, or 4.5%, expected to remain on their current jobs for the remainder of their working lives.

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[1] The final interviews were conducted over a four-month period, beginning in mid-October of 1973 and continuing through February of 1974.

Those individuals who had been enrolled in general academic programs during high school (44.8%) were more likely to anticipate leaving their current jobs within two years than those respondents from either the cooperative vocational (21.0%) or work study programs (17.6%). The observed differences were, however, not tested for statistical significance due to the small number of hypothetical observations for a number of cells.

Each of the students who were employed at the time of the final interview was asked to outline the reasons why he did or did not desire to remain employed in his current job during the forthcoming year. The responses of those individuals who stated that they expected to remain in their current jobs during the entire forthcoming year are presented in Table 9-1. The reason most frequently cited by this group for expecting to continue in their current job was that they "needed the money" provided by the job or that the job was "O.K. until something better comes along." Nearly 45% of the 150 respondents cited such reasons. The "type of work" performed on the job was the second most-frequently cited reason for wanting to remain employed in their current positions.

The variations in the responses provided by the students did not yield sufficient numbers of observations per cell to allow for tests of significance of the differences among the four types of high school programs. Two major differences in the actual distributions of responses should however be noted. First, the respondents from the regular vocational programs (71.4%) were substantially more likely to cite such reasons as "need the money" or "O.K. for now" than the respondents from the other three programs combined (36.5%). Secondly, respondents from the cooperative vocational programs (43.9%) were substantially more likely to cite "type of work" reasons than those from the other programs. As was noted in the previous chapter, the coop students were satisfied with their last jobs to a significantly greater degree than those students who had graduated from the other types of high school programs.[1]

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1. The job satisfaction ratings of the students were further analyzed with the assistance of multiple regression techniques. The findings which are reported upon in the following chapter revealed that graduates from cooperative vocational programs were significantly more satisfied with their jobs even after controlling for the effects of hourly wages, occupations, and the training-related nature of the jobs.

Table 9-1: Reasons for Wanting to Remain Employed in Current Job During Forthcoming Year (N = 150)

High School Program	(1) Wages and Fringe Benefits	(2) Type of Work	(3) Working Conditions; Co-Workers	(4) Training on Job	(5) Need the Income; O.K. until Better Opportunity Arises	(6) Other
Cooperative Vocational (N = 57)	6 (10.5%)	25 (43.9%)	5 (8.8%)	6 (10.5%)	17 (29.8%)	10 (17.5%)
Regular Vocational (N = 35)	2 (5.7%)	7 (20.0%)	6 (17.1%)	5 (14.3%)	25 (71.4%)	2 (5.7%)
Work Study (N = 27)	4 (14.8%)	7 (25.9%)	2 (7.4%)	3 (11.1%)	11 (40.7%)	5 (18.5%)
General Academic (N = 31)	3 (9.7%)	12 (38.7%)	2 (6.5%)	2 (6.5%)	14 (45.2%)	2 (6.5%)
Total (N = 150)	15 (10.0%)	51 (34.0%)	15 (10.0%)	16 (10.7%)	67 (44.7%)	19 (12.7%)

Note: (A) Multiple responses were allowed for this question; thus, the number of responses will exceed the number of individuals responding.

(B) The percentages appearing in parentheses are based upon the number of students providing such a response rather than upon the total number of responses provided by the students.

Nearly one-fourth of the students employed at the time of the final interview mentioned that they did not expect to remain employed in their jobs during the entire forthcoming year. These individuals were asked to outline their reasons and the distribution of their responses to this question is presented in Table 9-2. Only 36 of the 54 students who did not expect to continue in their existing jobs for another year were able to cite one or more specific reasons for not wanting to remain employed. The reasons varied quite widely. One-fourth of the respondents cited dissatisfaction with the wage and fringe benefits of the job, another one-fourth mentioned their dissatisfaction with the type of work they were performing, and slightly less than ten percent claimed that they planned to return to school. The small number of observations per cell in Table 9-2 prevented any detailed analysis of the distribution of responses across the high school programs.

Those respondents who did not expect to remain in their current job for another full year were asked to outline their plans upon leaving that job. Thirty-four of these fifty-four respondents (or 63.0%) planned to immediately seek another job, and six others expected to seek work and/or return to school. Excluding eight individuals who were undecided with respect to their future plans, 87% of these respondents were planning to continue actively participating in the civilian labor force upon terminating from their current jobs. The small numbers of observations per cell prevent any detailed statistical analysis of differences in the distributions of responses across high school programs.

Views on School Job Placement Assistance

During the final interview, the students were asked whether their high schools had provided job placement assistance to students either during the high school years or upon graduation from high school. Those students who responded that their schools did provide such placement assistance were then asked whehther they would consider returning to their school in the future for job placement assistance.

Of the 216 respondents who noted that their high school programs did provide some type of placement assistance to students, only 68 (or 31.5%) stated that they would consider returning to their high school for job placement assistance in the future. Another 134 of the respondents (62.0%) claimed that they would not consider returning to school for job placement assistance, and 14 (or 6.5%) were uncertain. (See Table 9-3).

The distributions of the responses to this question varied substantially among the four high school programs. Nearly 47% of the respondents

Table 9-2: Reasons for Not Wanting to Remain Employed in Current Job During Forthcoming Year (N = 35)

High School Program	(1) Wage and Fringe Benefits	(2) Working Conditions	(3) Type of Work	(4) Return to School	(5) Other (Lack of Security; Try Something Else, Etc.)
Cooperative Vocational (N = 12)	3 (25.0%)	0	5 (41.7%)	0	4 (33.3%)
Regular Vocational (N = 8)	2 (25.0%)	0	0	1 (12.5%)	5 (62.5%)
Work Study (N = 5)	2 (40.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)
General Academic (N = 11)	2 (18.2%)	0	4 (36.4%)	1 (9.1%)	5 (45.5%)
Total	9 (25.0%)	1 (2.8%)	10 (27.8%)	3 (8.3%)	16 (44.4%)

Note: (1) Students who could not provide any reasons for their plans to leave their current job within the year were excluded from the totals.

(2) Multiple responses were allowed for this question; thus, the number of individual responses (38) exceeds the number of students responding to this question (36).

(3) The percentages appearing in parentheses were based upon the number of students responding to the question rather than upon the total number of responses provided by the students.

who had graduated from cooperative vocational programs expressed a willingness to consider using the job placement services of the school while only 9% of the graduates from the general academic programs expressed a similar willingness. It should also be noted that fewer than 30% of the graduates from work study programs responded in the affirmative. The observed differences in the distributions of responses among the high school programs were significantly different at the .001 level.[1]

Those individuals who did admit a willingness to utilize school job placement services in the future were asked to outline their reasons for considering the use of such services. While a number of different reasons were mentioned by this group, two specific reasons were cited quite frequently and accounted for approximately 72% of all responses. Nearly 46% of the respondents stated that they would be willing to consider using the school's placement services since school officials and staff had previously been helpful in locating jobs for them. In addition, approximately one-fourth of the respondents pointed out the fact that they would need assistance in finding work in the future and that they would consider using all available sources of job placement assistance.

A wide variety of reasons were cited by the students for not considering use of the school's placement services. The most frequently cited reason, accounting for 55.5% of all responses, was that the school either would not be able to provide assistance or that the jobs available through the school were not of sufficiently high quality. The second-most frequently cited reason accounting for only 7.3% of all responses was the belief of the student that placement assistance was not available to previous graduates of the program.

The findings indicate that those respondents who had participated in work study programs during high school were most likely to mention the ineffectiveness or poor quality of school placement services. Nearly 70% of the respondents from work study programs cited such factors, in comparison to only 51.7% of the respondents from the other types of high school programs. The lack of a sufficient number of hypothetical observations precluded a test of significance of the differences in the distributions of responses among the high school programs.

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[1] The "No" responses were combined with the "uncertain" responses before chi-square statistic was calculated. As a result of the combing of responses, there are only three degrees of freedom for the test of significance.

Table 9-3: Would Respondent Consider Returning to High School For Job Placement Assistance? (N = 216)

High School Program	(A) Yes	(B) No	(C) Uncertain	(D) Total
Cooperative Vocational (N = 77)	36 (46.8%)	37 (48.1%)	4 (5.2%)	77 (35.6%)
Regular Vocational (N = 49)	15 (30.6%)	32 (65.3%)	2 (4.1%)	49 (22.7%)
Work Study (N = 45)	13 (28.9%)	29 (64.4%)	3 (6.7%)	45 (20.8%)
General Academic (N = 45)	4 (8.9%)	36 (80.0%)	5 (11.1%)	45 (20.8%)
Total	68 (31.5%)	134 (62.0%)	14 (6.5%)	216

(1) $\chi^2 = 17.275$

(2) Degrees of Freedom = 3

(3) Significance = .001

Note: (A) The "No" responses were combined with the "Uncertain" responses before calculating the chi-square statistic.

Educational Experiences in Post-High School Period

Table 9-4 provides information on the enrollments of students in post-secondary educational institutions during the follow-up period.[1] Of the 366 for whom some information was available, 108 (or 29.5%) attended some type of post-secondary educational program during the follow-up period. The enrollment behavior of the graduates varied quite widely among the four high school programs. Graduates from the general academic programs (50.5%) were most likely to have attended school at some point during the follow-up period while graduates from the coop programs (17.4%) were least likely to have done so. The differences in the distributions of responses among the four high school programs were significant at the .001 level.

Table 9-5 provides information on the types of post-secondary educational institutions or programs in which the students had been enrolled during the follow-up period. Trade or technical school accounted for the largest share of enrollment (41.7%) while an additional one-fourth attended four-year colleges and universities. Another 13% of these 108 students attended two year colleges, including community colleges, or business schools.

The types of post-secondary educational institutions attended by these students also varied quite considerably among the four high school programs. Graduates from coop programs were most likely to attend a trade or technical school (57.9%), and none of the graduates from these programs attended either a two-year or four-year college. On the other hand, 57.2% of the graduates from the general academic programs who enrolled in school during the follow-up period attended a two-year or four-year college or university. The differences in the distributions of educational institutions among the four high school programs were significant at the .001 level.

Those students who had enrolled in some type of educational institution or program during the follow-up period were asked to assess their post-high school educational program. See Table 9-6. Approximately one-half of the students (49.1%) claimed that their post-high school educational program was related to their high school program. The distributions of responses to this question did however vary rather sharply among the four high school programs. While 63.2% of the graduates from the coop programs felt that their post-high school educational program was related to their high school training, only 19.0% of the graduates from the work study programs felt the same way. The observed differences in the distributions of responses among the four high school

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[1] The results presented in Table 9-4 pertain to all graduates for whom at least one post-high school interview was conducted and refer to their educational status at the time of the last successful interview held with them.

Table 9-4: Has Respondent Attended School at any Time Since Graduation From High School? (N = 366)

High School Program	Yes	No	Total
Cooperative Vocational (N = 109)	19 (17.4%)	90 (82.6%)	109 (29.8%)
Regular Vocational (N = 86)	19 (22.1%)	67 (77.9%)	86 (23.5%)
Work Study (N = 74)	21 (28.4%)	53 (71.6%)	74 (20.2%)
General Academic (N = 97)	49 (50.5%)	48 (49.5%)	97 (26.5%)
Total	108 (29.5%)	258 (70.5%)	366 (100.0%)

(1) $\chi^2 = 28.696$

(2) Degrees of Freedom = 3

(3) Significance = .001

programs were statistically significant at the .05 level.

Only 22.7% of those who had enrolled in a post-secondary educational program had completed the program at the time of the final interview. Approximately 28% of those who attended a post-secondary educational program had dropped out of the program prior to completion. Among those who had enrolled in post-secondary educational programs, coop and regular vocational students (33.3%) were more likely to have completed the program by the time of the final interview. This particular result was, however, influenced in part by their lower rates of enrollment in either two-year or four-year colleges and universities.

Assessments of High School Programs

During the final interview, the students were asked to assess the effectiveness of their high school programs. Approximately 36% of the students stated that they had been "very well" or "well" prepared for work, 27.0% felt that they had been "somewhat" prepared, and 37.5% claimed that they were either "unprepared" or "very poorly" prepared for work.

The responses to this question varied somewhat among the four high school programs. Former coop (43.8%) and regular voc ed (40.6%) students were more likely to state that their high school programs had prepared them "very well" or "well" for work than those who had participated in either the work study (29.2%) or general academic programs (24.2%). More than one-half of the students from the general academic programs (51.5%) felt that they had been "unprepared" or "very poorly" prepared for employment. The observed differences in the distributions of responses among the four high school programs were marginally significant at the .05 level.[1]

The students were also asked to outline the strong points and limitations of their high school programs. Approximately three-fourths of the respondents (74.7%) were able to mention one or more strong points of their high school programs while the remaining one-fourth of the students claimed that their high school program did not have any good points. While 86.3% of the students graduating from the cooperative vocational programs and 80.8% of those graduating from the work study programs were able to cite one or more specific strong points of their high school programs, only 55.9% of the graduates from general academic programs were able to do so. The observed

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[1] The value of the chi-square statistic was actually significant only at the .052 level. A chi-square of 12.59 is required (six degrees of freedom) for significance at the .05 level.

Table 9-5: First Type of Post-Secondary School or Educational Program in Which Students Was Enrolled (N = 108)

High School Program	(1) Four-Year College	(2) Two-Year College or Business School	(3) Trade or Technical School	(4) Union-Related Classroom Instruction	(5) Other (Prep School, Correspondence School)
Cooperative Vocational (N = 19)	0	0	11 (57.9%)	4 (21.1%)	4 (21.1%)
Regular Vocational (N = 19)	3 (15.8%)	2 (10.5%)	7 (36.8%)	5 (26.3%)	2 (10.5%)
Work Study (N = 21)	5 (23.8%)	3 (14.3%)	10 (47.6%)	0	3 (14.3%)
General Academic (N = 49)	19 (38.8%)	9 (18.4%)	17 (34.7%)	0	4 (8.2%)
Total (N = 108)	27 (25.0%)	14 (13.0%)	45 (41.7%)	9 (8.3%)	13 (12.0%)

(1) χ^2 = 17.550

(2) Degrees of Freedom = 3

(3) Significance = .001

Notes: (A) The "Four-Year College" and "Two-Year College or Business School" categories were combined into one category before the value of the chi-square statistic was calculated.

(B) The "Trade or Technical School", "Union-Related Classroom Instruction," and "Other" categories were combined before the value of the chi-square statistic was calculated.

Table 9-6: Was Post-High School Educational Program Related to Student's High School Trade or High School Program? (N = 108)

High School Program	(1) Yes	(2) No	(3) Total
Cooperative Vocational (N = 19)	12 (63.2%)	7 (36.8%)	19 (17.6%)
Regular Vocational (N = 19)	11 (57.8%)	8 (42.1%)	19 (17.6%)
Work Study (N = 21)	4 (19.0%)	17 (81.0%)	21 (19.4%)
General Academic (N = 49)	26 (53.1%)	23 (46.9%)	49 (45.4%)
Total	53 (49.1%)	55 (50.9%)	108

(1) $\chi^2 = 7.892$

(2) Degrees of Freedom = 3

(3) Significance = .05

differences in the distributions of responses among the four high school programs were significant at the .001 level.

The specific types of strong points mentioned by the students are presented in Table 9-7. This particular question was open-ended in nature, and a wide variety of individual responses were provided by the students. Nearly two-thirds of these respondents, however, mentioned the quality of the teachers or the types of courses offered by the program as particular strengths. The opportunities provided by the high school program either to obtain employment experiences while in school or to acquire marketable occupational skills were mentioned by more than one-third of the respondents. Graduates from both the coop (43.9%) and regular voc ed programs (44.4%) were, however, far more likely to cite these job experience or occupational skill attainment factors than those students who had been enrolled in the general academic programs during the high school (10.5%). The small number of hypothetical observations for many of the cells in Table 9-7 precluded any test of significance of the differences in the distributions of responses among the four high school programs.

The students were also requested to mention any bad points or limitations of their high school programs and their responses are summarized in Table 9-8. Approximately one-half of these respondents (48.2%) cited the poor quality of either the teaching, counseling, or content of specific courses in their high school programs. Another 28% criticized their high school programs either for being too general in nature or for failing to teach skills that would be valuable to the students in the future. A wide variety of other program shortcomings were noted by the graduates, including the limited nature or poor quality of jobs provided to students during high school, inadequate school facilities, and the lack of discipline in the classrooms.

The recommendations of the students for improving the overall quality of their high school programs are presented in Table 9-9. Specific recommendations for improving the programs were provided by 134 of the students. The types of recommendations mentioned by the students were in close accord with the program shortcomings. Approximately 57% of the respondents cited a need for strengthening the quality of individual courses in the program, including shop courses. Former coop students (70.7%) were most likely to mention the desirability of improvements in this area; they were particularly likely to recommend an improvement in the related instruction courses, both math and science, and the shop courses, particularly emphasizing the need

Table 9-7: Strong Points of Students' High School Programs
(N = 207)

High School Program	(1) Opportunity to Earn an Income While in High School	(2) Opportunity to Gain Job Experience or Occupational Skills Useful in Acquiring Jobs	(3) Teachers; Academic Courses; Other Courses	(4) Background for Further Education	(5) All Other Reasons (School Structure, Activities in School, Discipline, etc.)
Cooperative Vocational (N = 82)	2 (2.4%)	36 (43.9%)	51 (62.2%)	0	21 (25.6%)
Regular Vocational (N = 45)	0	20 (44.4%)	31 (68.9%)	0	4 (8.9%)
Work Study (N = 42)	5 (11.9%)	14 (33.3%)	29 (69.0%)	1 (2.4%)	17 (40.5%)
General Academic (N = 38)	0	4 (10.5%)	24 (63.2%)	3 (7.9%)	13 (34.2%)
Total (N = 207)	7 (3.4%)	74 (35.7%)	135 (62.2%)	4 (1.9%)	55 (26.6%)

Notes: (1) Multiple responses were allowed to this question; thus, the total number of responses to this question exceeded the total number of students responding to this question.

(2) The percentages appearing in parantheses were based upon the number of students providing a response rather than upon the total number of responses provided by students.

Table 9-8: Bad Points or Limitations of Students' High School Programs (N = 85)

High School Program	(1) Lack of Job Opportunities or Poor Job Opportunities During High School	(2) Program too Easy or too General in Nature; Program Teaches Nothing Valuable for Future	(3) Quality of Teachers, Counseling or Specific Courses in Program	(4) Other (Poor School Facilities, Discipline, Lack of Extra-curricular Activities, etc.)
Cooperative Vocational (N = 28)	3 (10.7%)	9 (32.1%)	16 (57.1%)	7 (25.0%)
Regular Vocational (N = 24)	2 (8.3%)	8 (33.3%)	12 (50.0%)	7 (29.2%)
Work Study (N = 10)	2 (20.0%)	1 (10.0%)	1 (10.0%)	6 (60.0%)
General Academic (N = 23)	0 (0.0%)	6 (26.1%)	12 (52.2%)	9 (39.1%)
Total (N = 85)	7 (8.2%)	24 (28.2%)	41 (48.2%)	29 (34.1%)

Notes: (1) Multiple responses were allowed to this question; thus, the total number of responses will exceed the total number of students providing responses to this question.

(2) The percentages appearing in parentheses were based upon the number of students responding to the question rather than upon the total number of responses.

269

Table 9-9: Recommendations of Respondents for Improving Their High School Programs (N = 134)

High School Program	(1) Provide More or Better Jobs for Students	(2) Provide a Co-op or Work Study Program	(3) Strengthen Quality of Teachers, Counselors, Program Staff	(4) Strengthen Quality of Courses, Shop Facilities	(5) Other (School Facilities, Program Structure, Discipline,etc.)
Cooperative Vocational (N = 41)	3 (7.3%)	0 (0.0%)	10 (24.4%)	29 (70.7%)	13 (31.7%)
Regular Vocational (N = 40)	0 (0.0%)	5 (12.5%)	8 (20.0%)	22 (55.0%)	15 (37.5%)
Work Study (N = 20)	4 (20.0%)	0 (0.0%)	0 (0.0%)	11 (55.0%)	9 (45.0%)
General Academic (N = 33)	1 (3.0%)	1 (3.0%)	11 (33.3%)	14 (42.4%)	14 (42.4%)
Total (N = 134)	8 (6.0%)	6 (4.5%)	29 (21.6%)	76 (56.7%)	51 (38.1%)

Notes: (1) Only those students who were able to provide one or more specific recommendations for improving their high school programs are included in the above table.

(2) Multiple responses were allowed for this question; thus, the total number of responses exceeded the number of students providing a response.

(3) The percentages appearing in the parentheses were based upon the number of students providing a response rather than upon the total number of responses provided.

for more modernized shop equipment.

At the end of the final interview, the students were asked to assess whether they would enroll in the same high school program again, given their experiences in the labor market since high school graduation. Approximately 62% of the respondents stated that they would again enroll in the same type of high school program. The remaining 38% of the respondents either remarked that they would enroll in a different type of high school program or noted that they were unable to make a judgment as to the choice of a high school program at the time of the interview. Graduates from the work study programs (69.2%) and the cooperative vocational programs (67.3%) were more likely to state that they would again enroll in the same type of high school program than graduates from the regular vocational (60.3%) and general academic programs (52.2%). The observed differences in the distributions of responses to this question were, however, not statistically significant at the .10 level.

The reason mentioned by the students as to why they would be willing to enroll again in the same type of high school program are summarized in Table 9-10. Specific responses were provided by 163 of the 179 graduates who claimed that they would enroll in the same type of high school program. Slightly more than one-half of the respondents stated that they would attend the same type of high school program since it was "interesting" and/or "enjoyable". Graduates from both the cooperative vocational (61.7%) and regular vocational programs (63.4%) were particularly likely to mention such reasons. It is interesting to note in this regard that fewer than one-third of the respondents from either the work study or general academic programs mentioned that their programs were either "enjoyable" or "interesting". While the responses provided by these 163 graduates do appear to vary systematically by high school program, the small number of hypothetical observations for many of the cells precluded any test of significance of the observed differences in the distributions of responses among the four types of high school programs.

Table 9-11 provides a summary of the types of reasons mentioned by those graduates who stated that they would not again enroll in the same type of high school program. Specific reasons for not wanting to enroll in the same type of high school program were mentioned by 93 of the graduates. Nearly one-half of these respondents (48.4%) stated that they would not enroll in the same type of program since they were now interested in a different trade or an entirely different type of work. The proportions of respondents citing

Table 9-10: Reasons Why Respondents Would Be Willing to Enroll in Same High High School Program (N = 163)

High School Program	(1) Opportunity to Earn an Income While in School	(2) Opportunity to Obtain Work Experience or Job Skills While in School	(3) Preparation for Further Education	(4) Teachers, Counselors, Other Staff	(5) Interesting and Enjoyable	(6) Other (School Facilities, Program Structure
Cooperative Vocational (N = 60)	1 (1.7%)	26 (43.3%)	0 (0.0%)	4 (6.7%)	37 (61.7%)	4 (6.7%)
Regular Vocational (N = 41)	0 (0.0%)	19 (46.3%)	0 (0.0%)	3 (7.3%)	26 (63.4%)	3 (7.3%)
Work Study (N = 34)	7 (20.6%)	7 (20.6%)	0 (0.0%)	6 (17.6%)	11 (32.4%)	7 (20.6%)
General Academic (N = 28)	1 (3.6%)	6 (21.4%)	4 (14.3%)	0 (0.0%)	8 (28.6%)	10 (35.7%)
Total (N = 163)	9 (5.5%)	58 (35.6%)	4 (2.5%)	13 (8.0%)	82 (50.3%)	24 (14.7%)

Notes: (1) Multiple responses were allowed to this question; thus, the total number of responses exceeded the number of individuals responding to the question.

(2) The proportions appearing in parentheses were based upon the number of individuals responding to the question rather than upon the total number of responses.

Table 9-11: Reasons Why Respondents Would Not Be Willing to Enroll Again in Same High School Program (N = 93)

High School Program	(1) Didn't Learn any Skill or Valuable Skills	(2) Program Too Boring or Too Easy	(3) Teachers, Counselors, Other Staff	(4) Lack of Jobs in Program Area or Poor Quality of Such Jobs	(5) Now Interested in Different Trade or Type of Work	(6) Other (School Facilities, Program Structure
Cooperative Vocational (N = 28)	3 (10.7%)	8 (28.6%)	0	5 (17.9%)	12 (42.9%)	5 (17.9%)
Regular Vocational (N = 23)	4 (17.4%)	1 (4.3%)	0	6 (26.1%)	15 (65.2%)	3 (13.0%)
Work Study (N = 13)	7 (53.8%)	0	0	0	6 (46.2%)	3 (23.1%)
General Academic (N = 29)	16 (55.2%)	1 (3.4%)	2 (6.9%)	2 (6.9%)	12 (41.4%)	4 (13.8%)
Total (N = 93)	30 (32.3%)	10 (10.8%)	2 (2.1%)	13 (14.0%)	45 (48.4%)	15 (16.1%)

Notes: (1) Multiple responses were allowed to this question; thus, the total number of responses exceeded the number of individuals responding to the question.

(2) The percentages appearing in parentheses were based upon the number of individuals responding to the question rather than upon the total number of responses provided.

such reasons were approximately equal for graduates from the cooperative vocational (42.9%), work study (46.2%), and general academic programs (41.4%); however, the figure was about two-thirds of the respondents from the regular vocational programs.

Overall, the findings indicate that a rather sizeable fraction of the graduates from these high school programs had serious reservations with respect to their choice of a high school program. Nearly forty per cent of the graduates for whom a final interview was conducted indicated that they would not enroll in the same type of high school program again if they had the option of beginning high school anew. These findings seem to indicate either a need for more intensive occupational information and counseling to be provided to students prior to their selection of a high school program and/or the desirability of delaying occupational training for some students until a later period in their lives; e.g., their late teen years or their early twenties. By postponing this decision until they have had an opportunity to gain exposure to sufficient job experiences, they will hopefully make a more informed choice of an occupational training program.

As was emphasized in earlier chapters, high school programs can play a key role in this process by providing students additional opportunities to obtain exposure to different occupational employment situations during the high school years. Hopefully, this could be accomplished without limiting the students' training to one specific occupation, given the findings of a high probability of rejecting such occupations upon graduation from high school. The challenge for the high schools in future years would seem to be that of convincing employers to hire students for a wider range of jobs without requiring students to limit the bulk of their in-school training to one specific occupational area.

The achievement of this objective would appear to require a joint cooperative effort on the part of the local schools, employers, and the federal government. With respect to the schools, this would require an increased commitment on their part to developing close ties with local employers, both private and public, so as to link in-school training with actual job requirements and to strengthen their job placement services for students.[1] For employers, this would imply an increased willingness to experiment with revisions of existing hiring standards on the basis of age to allow for an expansion of the employment of youth in traditional "adult" jobs.[1] Finally, the federal government must be committed to a more aggressive macroeconomic policy. Such a policy should generate a greater number of overall employment opportunities, which would particularly enhance youth job prospects and should provide greater incentives for employers to revise traditional hiring standards to allow greater youth access to "adult" jobs in local labor markets.

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[1] The passage of the 1976 Amendments to the Vocational Education Act of 1963 may provide an impetus to increased employer involvement in the design of training curriculum and the selection of occupational areas for training. The amendments expanded the responsibilities of the existing State Vocational-Technical Education Advisory Councils.

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[1] The findings of several recent surveys of employer hiring practices with respect to youth are presented in the following two volumes:

(i) National Commission for Manpower Policy, From School to Work: Improving the Transition, U.S. Government Printing Office, Washington, D.C., 1976.

(ii) Wolfbein, Seymour (Editor), Labor Market Information for Youths, Temple University, Philadelphia, 1975.

Chapter X

FINDINGS OF THE MULTIVARIATE STATISTICAL ANALYSIS

The preceding chapters of this report have provided both a description and an analysis of the labor market and educational experiences of the students in the various cooperative and non-cooperative high school programs. Chapters IV through VI were focused on the experiences of the students during their junior and senior years of high school while subsequent chapters focused on the experiences of students during the post-high school follow-up period.[1]

Each of those chapters contained an analysis of differences in the labor force, employment, unemployment, and earning experiences of students in the various cooperative and non-cooperative high school programs. both vocational and non-vocational. Observed differences in labor force participation, employment, unemployment, occupational and industrial job attachment, and earnings among students in these programs were tested for statistical significance. Among the statistical techniques utilized in conducting those tests were the "t"-test for differences in sample means and sample proportions and contingency table analysis that utilizes the chi-square statistic in testing for independence between variables.

This chapter is designed to provide a summary of the findings of more rigorous statistical tests of the significance of the differences in the labor market and educational experiences of students in the various types of high school programs. Multivariate statistical techniques were utilized in determining whether or not participation in a particular type of high school program such as a cooperative vocational program, had an independent, statistically significant impact upon the labor market and educational experiences of the students.[2] Multiple regression analysis based upon ordinary least squares estimating techniques (OLS) was relied upon to estimate the effects of alternative types of high school programs upon various labor market and educational experiences of students.[3]

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[1] The duration of the follow-up period ranged from a minimum of sixteen and one-half months to a maximum of twenty-one months.

[2] From a public policymaking standpoint, the absolute size of these impacts (if any) should also be critically examined.

[3] The multiple regression program package contained in the Statistical Package for the Social Sciences (SPSS) was utilized in estimating each of the models presented in this chapter.

There are two appendices to this chapter. The first appendix (Appendix X-A) provides a listing and definitions of all of the variables, both dependent and independent, used in conducting the multivariate statistical analysis. This appendix also contains a discussion of the specific hypotheses being tested with the aid of the multiple regression techniques. Particular emphasis is placed upon the expected impacts of participation in the cooperative programs upon the labor force, employment, unemployment, earnings and educational outcomes. Appendix X-B presents the findings of the multiple regression analysis, including the sign, size, and statistical significance of the coefficients of all of the explanatory variables in each regression model. A total of sixteen different labor market, job satisfaction, and educational outcomes are examined in this chapter. A number of different models were used to estimate the independent impacts of the various high school programs upon each of these outcomes, including alternative specifications of the high school program variables.

Findings of the Multiple Regression Analysis (In-School Results)

The findings of the multivariate statistical analyses of the in-school labor market experiences of students are presented in Appendix X-B, Tables 10-1 through 10-8. For each of the eight labor market outcomes examined, a set of somewhat different regression models were estimated. The first two models included only the students' personal characteristics, their family backgrounds, and high school location variables as explanatory variables. Equations three and four included the major high school program variables (Cproghs, Vproghs, and Wproghs) in the models as additional explanatory variables.[1] Equations five and six are generally similar to equations three and four, with the exception that Cproghs and Vproghs are replaced by the five categories of trade programs, including their cooperative and non-cooperative subgroups, e.g.; Autoco, Rauto, Carpco, Rcarp. Equations seven and eight are similar to equation six except that one or more of the labor market experience variables are also included as explanatory variables. Thus, the last two equations in each table will contain the most comprehensive set of explanatory variables.

The review of the findings for each of the in-school labor market outcomes will emphasize the signs, magnitudes, and levels of statistical significance of the high school program variables. Key findings with respect to the influences of personal characteristics, family background variables, and other labor market variables will also be highlighted in this review.

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[1] The work study program variable (Wproghs) is typically replaced by its two subgroups, Bstwstd and Othwstd, in equation number four.

277

Labor Force Participation During High School

The dependent variable in Appendix X-B, Table 10-1 is Labpart, designed to represent the degree of labor force attachment of students during the junior and senior years of high school combined. This variable is a continuous variable rather than a zero-one type of variable (i.e., dummy variable) frequently utilized in econometric studies of labor force participation behavior. The variable represents the proportion of time (in weeks) in the junior and senior years of high school during which the student actively participated in the labor force. This dependent variable can range in value from a minimum of zero (no weeks in the labor force during this two-year period) to a maximum of one (104 weeks in the labor force during this two-year period).

In equation number two, only the personal characteristics, family background variables, and high school location variables were entered into the model as explanatory variables. The student's age, his racial and ethnic status, and his mother's typical employment status all influenced the labor force behavior of the student to a significant degree, with the signs of the coefficients being in accord with the hypotheses outlined in Appendix X-A. Older students, white students and students whose mothers were regularly employed were more likely to be attached to the labor force during the junior and senior years of high school. The coefficients of the race and ethnic variables are also quite large, indicating that black students and Spanish students, ceteris paribus, spent 15% and 25% less time in the labor force than their white counterparts during the junior and senior years of high school.[1]

In equation three, the high school program variables were also entered into the model. Only one of these three program variables (Wproghs) entered the model with a statistically significant coefficient. Students who participated in work study program were, ceteris paribus, in the labor force 13.2% more of the time than students in the general academic programs.

Students in the cooperative and regular vocational programs did not participate in the labor force significantly more than students in the general academic programs.[1]

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[1] These differences are measured in absolute percentage terms rather than in relative terms which would be higher than these absolute differences.

The findings for equation number four reveal that students in the specialized, central city work study program participated in the labor force during the high school years at rates substantially above those of students in the general academic programs as well as those of students in the other work study programs. The coefficient of Bstwstd is .296, indicating that students in this particular work study program were actively participating in the labor force 29.6% more of the time than students in the general academic programs. In addition, the students in this specialized work study program participated in the labor force at a rate 22.4% above that of their counterparts in the other work study programs, with the difference in the size of these two coefficients being statistically significant at the .01 level.

In equations six through eight, the individual vocational trade programs, both cooperative and non-cooperative, appear in the models as explanatory variables. In none of these equations did any of the vocational trade programs appear with a statistically significant coefficient. The only vocational program variable that comes close to significance at the 10% level is that of Rcarp, and the sign of its coefficient is negative throughout! The coefficients of both of the work study program variables (Bstwstd and Othwstd) remained positive and statistically significant throughout each of these equations.

Two labor market-related variables (Ktwage and Unemprte) were entered into the regression models of labor force participation. The average hourly wage (Ktwage) earned by students while employed during the junior and senior years of high school was entered into equations number seven and eight. It was earlier hypothesized that the willingness of students to participate in the labor force during the high school years would be positively influenced by the hourly wages that they earned from employment.

The findings contained in equations 7 and 8 reveal that average hourly wages of students had a positive and statistically significant effect upon the degree of their labor force participation during the junior and senior years. The coefficient on Ktwage in equation seven was .0008, indicating that an increase in a student's hourly wage of 25¢ would, ceteris paribus, have increased his attachment to the labor force by two percent or approximately 2.1 weeks

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[1] It should be noted that students in the cooperative vocational programs who held full-time coop jobs during the school year were regarded as working two twenty-hour weeks rather than a forty-hour week once every two weeks. Thus, each week spent working full-time on a coop job was counted as two weeks of participation in the labor force.

279

during this two-year time period. It is quite likely, however, that the participation - hourly earnings relationship is in actuality a simultaneous one; i.e., students who earn higher hourly wages will be willing to work more weeks during high school and students who work more weeks will likely be granted additional wage increases and, thus, earn higher hourly wages. The findings on the determinants of the average hourly wages of students contained in Appendix X-B, Table 10-7 provide support for this view.

In equation eight, Unemprte also appears as an explanatory variable, whose value was derived by dividing the total combined number of weeks of a student's unemployment during the junior and senior years by the total number of weeks in this two-year time period during which he participated in the labor force. It was hypothesized that the coefficient of this variable would be negative; i.e., students who encountered more difficulty in finding jobs would be discouraged from actively participating in the labor force.

The findings contained in equation eight do indicate that the relative amount of unemployment encountered by students did influence the degree of their labor force participation. The coefficient for Unemprte is negative as hypothesized and is statistically significant at the .01 level.[1] The magnitude of the coefficient (-.407) implies that a rise of 1% in the relative amount of unemployment would reduce the proportion of time spent by the student in the labor force by approximately .41%. The size of this "discouragement effect" is quite large and seems to indicate a potentially key role for school placement assistance in influencing not only the durations of unemployment spells of students, but also their labor force participation behavior. By gearing job placement assistance to students who would be expected to encounter greater difficulties in finding jobs on their own, school officials could succeed both in reducing the unemployment problems of this group and in increasing their labor force attachment.

Finally, in reviewing the findings presented in Appendix X-B, Table 10-1, it should be remembered that on average the students in the sample did participate in the labor force during the high school years to a rather substantial degree. The mean value for Labpart, the proportion of time spent in the labor force, for these 367 students was .716. Thus, during the two-year period (or

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[1] The mean value of Unemprte was 9.4%, implying that on average 9.4% of the total number of weeks spent by a student in the labor force during the junior and senior years of high school involved weeks of unemployment. Substantial variations in the values of this ratio existed among students. Its standard deviation was 15.3%.

104 weeks) covered by the analysis, the students spent 74.4 weeks in the civilian labor force.

Weeks of Employment Obtained by Students During the High School Years

The findings of the multivariate statistical analysis of the employment experiences of students during the high school years are presented in Appendix X-B, Tables 10-2 through 10-4. The dependent variable in Table 10-2 is Ktwksemp, the total number of weeks of employment obtained by a student during his junior and senior years. In model number two, only the personal characteristics of the student, family background variables, and the high school location variables were entered as explanatory variables. As hypothesized, the age of the student, his racial or ethnic status, the educational attainment of his father, and the regular labor force status of his mother significantly influenced the total number of weeks of employment obtained by the student during the junior and senior years of high school combined.[1] Older students, white students, students whose father had graduated from high school, and students whose mother was regularly employed were, ceteris paribus, employed for more weeks during the high school years. The coefficients for each of these variables were significant at either the .05 or .01 level, with the exeption of Fathgrad, which was significant only at the .10 level. The F-statistic for this equation (as well as for every other equation in Table 10-2) was significant at the .01 level.

In equation three, the three major high school program variables were entered into the model. The only program variable entering the model with a statistically significant coefficient was Wproghs, the work study program variable. The coefficient for Wproghs was positive as hypothesized and was equal to 13.2, implying that students who were enrolled in work study programs were, ceteris paribus, able to obtain 13.2 more weeks of employment than students in the general academic programs during the high school years. The coefficients of both the cooperative and non-cooperative vocational program variables were statistically insignificant (.10 level).

In equation number four, Bstwstd and Othwstd were entered into the regression model in place of Wproghs. The coefficients for these two types of work study programs were positive as hypothesized; however, only the coefficient for Bstwstd, the specialized work study program located in the central city, was significantly different from zero. The coefficient for Bstwstd was equal to 33.1, implying that students enrolled in this program were, ceteris paribus, able to obtain 33.1 more weeks of employment than students in the general academic programs.

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[1] The variable Absfath, representing the absence of the student's father from the home, did appear consistently with a negative coefficient as hypothesized. The size of the coefficient was not, however, ever large enough relative to its standard error to be judged significant at the 10% level.

In equation five through seven, the individual trade program variables were entered into the regression models in place of Cproghs and Vproghs. In none of these equations, did any of the individual trade program variables, whether cooperative or non-cooperative, enter the model with a statistically significant coefficient.

In equation number seven, the average hourly wage variable (Ktwage) was entered into the model. It was earlier hypothesized that higher hourly wages would induce students to supply more of their labor during the high school years. The coefficient on Ktwage was positive as hypothesized and statistically significant at the .01 level. The value of the coefficient for Ktwage was .102, indicating that an increase of 10¢ in the average hourly wage would induce a student, ceteris paribus, to remain employed for one more week.

Table 10-3 provides the findings of the multivariate statistical analysis of the employment experiences of students during the junior year of high school. The same 367 observations were included here to maintain uniformity for each of the eight dependent variables representing in-school labor market outcomes. In equation number two, only the student's personal characteristics, family background variables, and high school location variables were included as explanatory variables. The student's age, his racial or ethnic status, the absence of the father from the home, and the regular labor force status of the mother significantly influenced the weeks of employment that he obtained. As hypothesized, older students, white students, students whose father was present in the home, and students whose mother was regularly employed were able, ceteris paribus, to obtain more weeks of employment. Two of the five coefficients (those for Sprace and Mothwrks) were, however, only significant at the .10 level. The F-Statistic for equation two (and for every other equation in Table 10-3) was significant at the .01 level.

In equation number three, the three major high school program variables were entered into the model as explanatory variables. Again, the only program variable to enter into the equation with a significant coefficient was Wproghs, the work study program variable. The coefficient for Wproghs, as hypothesized, was positive and was statistically significant, but only at the .10 level.

The value of the coefficient for Wproghs was equal to 4.00, implying that students in work study programs were, *ceteris paribus*, able to obtain four more weeks of employment during the junior year of high school than students in general academic programs. The coefficients for Cproghs and Vproghs, the vocational program variables, were not significantly different from zero.

In equation number four, Bstwstd and Othwstd appear in the model as explanatory variables in place of Wproghs. The coefficient for Bstwstd is positive and statistically significant at the .01 level. The magnitude of Bstwstd's coefficient is also quite substantial, 17.9, indicating that students who were enrolled in this specialized work study program during the junior year were able to obtain nearly eighteen additional weeks of employment in comparison to students in the general academic programs. Those students who participated in the other work study programs did not obtain any more weeks of employment than students in the general academic programs.

The individual trade program variables were entered into equations five through seven, and several of these variables did appear with statistically significant coefficients. The signs of these coefficients, however, were negative, implying that students enrolled in such programs, *ceteris paribus*, obtained fewer weeks of employment than did students in the general academic programs.

In equation number five, the variable Carp, representing enrollment in a carpentry-related vocational program, including both cooperative and regular programs, appears with a negative coefficient of -6.77 and was significant at the .10 level (two-tailed test). This result is contrary to our previous hypothesis with respect to the expected sign for this variable. Covered employment in contract construction in the area increased during both 1970-71 and 1971-72, and, in fact, was the only goods-producing sector to do so. The findings in equation seven reveal that only the students in the regular carpentry-related programs experienced significantly fewer weeks of employment during the junior year than the general academic students.

One of the cooperative trade program variables, Metaco, representing participation in a cooperative metal-related vocational program, also appeared in equation seven with a negative coefficient that was statistically significant at the .10 level. This result is not totally surprising given the sharp declines in employment that occurred within key metal-related industries in the area between 1970 and 1971, including declines of 5.4% and 9.0% in the fabricated metal and non-electrical machinery industries, respectively.[1]

Finally, in equation number seven, Kjwage, a variable representing the average hourly wage received by students while employed during the junior year, was entered into the model. Its coefficient was, as hypothesized, positive and statistically significant at the .10 level. The value of the coefficient was .029, implying that an increase of 10¢ in the average hourly wage would, ceteris paribus, induce a student to remain employed for approximately an additional .3 weeks. The estimated value of the coefficient is, as noted above, likely biased in an upward direction due to the simultaneous nature of the relationship between weeks of employment and average hourly wages.

Table 10-4 contains the findings of the multivariate statistical analysis of the employment experiences of the students during the senior year of high school. The dependent variable is Kswksemp, representing the total number of weeks of employment obtained by a student during the senior year of high school.

In equation number two, in contrast to the previous findings, age did not significantly influence the weeks of employment obtained by students during the senior year. Race and ethnic status, father's education, and mother's regular employment status did significantly influence the weeks of employment obtained. The signs of the coefficients for these variables were in accord with our hypotheses. Both black and Spanish-students, ceteris paribus, were employed for fewer weeks than white students while students whose father had graduated from high school and whose mother was regularly employed obtained, ceteris paribus, more weeks of employment. The F-Statistics for equation two (as is also true for every other equation, except equation six is significant at the .01 level.

The major high school program variables were entered into the regression model in equation number three. Again, only the work study program variable, Wproghs, appeared with a statistically significant coefficient. The sign of the coefficient for Wproghs was positive as hypothesized and was statistically significant at the .01 level. The value of its coefficient was 9.02, implying that students who were enrolled in work study programs were, ceteris paribus, able to obtain nine more weeks of employment during the senior year than their counterparts in the general academic programs. The coefficients for Cproghs and Vproghs, the vocational program variables, were not significantly different from zero.

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[1] Commonwealth of Massachusetts, Division of Employment Security, Employment and Wages in Massachusetts and the Standard Metropolitan Statistical Areas, 1970-1973, pp. 12-13.

In equation number four, Bstwstd and Othwstd were entered into the model in place of Wproghs. The coefficients for both of these variables were, as hypothesized, positive and statistically significant. The coefficient for Bstwstd was, as expected, larger than that of Othwstd, and the difference between these two coefficients (15.63 vs. 6.00) was significant at the .05 level.[1]

In equation five, the individual trade program variables replaced Cproghs and Vproghs. Only one of the trade variables, Metal, entered the equation with a positive and statistically signficiant coefficient. The value of the coefficient for Metal was 3.64, and it was significant at the .10 level. The cooperative and regular trade program variables were entered into the model in equation number six, and two of these nine trade-related program variables (Rauto and Metaco) appeared with positive and statistically significant coefficients.

The finding that students in the regular auto-related trade programs fared significantly better employment-wise than the students in the general academic programs is in accord with our previous hypothesis, given the favorable employment developments within the automotive dealer and gas station industry during 1970-72. It is rather disappointing, however, not to find a similar positive and statistically significant coefficient for Autoco, the cooperative auto trades program. The finding of a positive and statistically significant coefficient for Metaco, the cooperative metal trades program, was somewhat surprising.

In equation number seven, the variable Kswage, representing the average hourly wage of students during the senior year, was entered into the model as an additional explanatory variable. The sign of the coefficient for Kswage was positive as hypothesized; but it was not statistically significant at the .10 level.

The findings contained in Table 10-4 should also be assessed in light of the information on the number of weeks of employment actually obtained by students during the senior year of high school. The finding that certain cooperative programs did not generate significant employment gains for students does not necessarily imply that students in such programs were infrequently employed. The mean number of weeks of employment obtained by these 367 students during the senior year was 36.8 weeks, which is equivalent to employment in 71% of the fifty-two weeks covered by the analysis.

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[1] The value of the t-statistic in the test of the significance of the difference between these two coefficients was 1.92, which for the given degrees of freedom (353) was significant at the .05 level.

Unemployment Experiences During the High School Years

The findings of the multivariate statistical analysis of the unemployment experiences of students during the junior and senior years of high school combined are presented in Appendix X-B, Tables 10-5 and 10-6. The absolute number of weeks of unemployment experienced by the students is analyzed in Table 10-5 while the findings with respect to the relative number of weeks of unemployment are presented in Table 10-6. All of the information on unemployment experiences involved retrospective reporting on the part of the interviewees. Several researchers have claimed that such retrospective reporting of unemployment experiences of young workers tends to generate estimates of unemployment that are biased in a downward direction.[1] This possibility of underestimation should be kept in mind when reviewing the findings in Tables 10-5 and 10-6.

The dependent variable in Table 10-5 is Ktwksun, the total number of weeks of unemployment experienced by students during the junior and senior years of high school combined. In equation number two, only two of the eight explanatory variables (Fathgrad and Indsub) have statistically significant coefficients. The coefficient of Fathgrad, a dummy variable representing students whose fathers had graduated from high school, was negative as hypothesized and was statistically significant at the .05 level. The overall explanatory power of equation two, however, is quite low. The value of R^2 for equation two was only .026, and the F-Statisitics was not significant at the .10 level.

In equation number three, the major high school program variables were entered into the model. None of these variables had a statistically significant effect upon the total weeks of unemployment encountered by the students during their junior and senior years. The sign of the coefficient for Cproghs, the cooperative vocational program variable, was negative as hypothesized; however, this variable was not statistically significant at the .10 level. The overall explanatory power of the entire regression model again remained quite low. The value of the R^2 was only .028, and the F-Statistic was again not significant at the .10 level.

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[1] See: Barrett, Nancy S. and Morgenstern, Richard D., "Why Do Blacks and Women Have High Unemployment Rates?", Journal of Human Resources, Fall, 1974, pp. 452-464.

In equations five through seven, the individual trade program variables were entered into the model in place of Cproghs and Vproghs. In equation five, two of these trade variables appeared with a statistically significant coefficient. Auto, the auto-related trades variable, appeared as earlier hypothesized with a negative coefficient (-3.1) and was statistically significant at the .10 level. The F-Statistic for equation five was not statistically significant at the .10 level.

In equations six and seven, two trade program variables, Rauto and Miscrft, entered the model with statistically significant coefficients. Students in the regular auto-related trade programs, ceteris paribus, experienced 3.8 fewer weeks of unemployment than students in the general academic programs while students in the miscellaneous trades encountered approximately 9.1 more weeks of unemployment. The F-Statistics for both of these equations were not statistically significant at the .10 level.

Of the eight equations appearing in Appendix X-B Table 10-5, only equation number eight possessed a degree of explanatory power that was statistically significant. Equation eight is identical to equation seven, except that Ktwksemp was added as an explanatory variable. It was earlier hypothesized that students who participated to a substantial degree in the labor force would encounter fewer unemployment problems. Ktwksemp, representing the total weeks of employment obtained by students during the junior and senior years of high school, should thus be negatively correlated with Ktwksun. This relationship is not simply representing an accounting identity. Each week in this two-year period could have been spent out of the labor force rather than employed or unemployed.

The coefficient on Ktwksemp is negative as hypothesized and is statistically significant at the .01 level. This finding should not, however, be interpreted as one of weeks of employment directly producing or "causing" declines in weeks of unemployment. Students who encounter difficulties in finding work during the high school years will tend to participate in the labor force for shorter periods of time; thus, they will end up with fewer weeks of employment. Those students with strong attachments to the labor force do experience fewer weeks of unemployment.

Table 10-6 provides the results of the multivariate statistical analysis of the relative amount of unemployment encountered by students during the junior and senior years. The dependent variable is Unemprte, which was calculated by dividing the total weeks of unemployment of a student during the junior and senior years by the total number of weeks in which he participated in the labor force during this two-year period. This ratio can be regarded as each student's own unemployment rate. The variable had a mean value of .094 and a standard deviation of .152.[1]

In equation number two, four of the eight explanatory variables had statistically significant coefficients, with each of the signs being in accord with our previous hypotheses. Holding all other variables constant, older students and students whose father had graduated from high school experienced lower unemployment rates while black students and students residing in the large inner suburbs encountered higher unemployment rates. The overall explanatory power of model number two was rather low, with only 3.8% of the variation in Unemprte being explained by the regression. The F-statistic is, however, significant at the .10 level.[2]

In equation number three, the major high school program variables are entered into the model; however, none of these three program variables appears with a statistically significant coefficient. In addition, the F-statistic for the entire equation is not significant at the .10 level.

In equation five, three of the program variables (Bstwstd, Auto, and Miscrft) entered the model with statistically significant coefficients. The coefficients for Bstwstd and Auto were negative as hypothesized and were statistically significant at the .05 level. Miscrft, the miscellaneous trades variable, had a positive coefficient (.161) and was statistically significant at the .01 level. The F-statistic for this equation increased substantially in value and was significant at the .01 level.

When the trade variables are broken down into their cooperative and noncooperative categories in equation number six, two of them (Rauto and Metaco) appeared with negative, statistically significant coefficients. The sign of the coefficient for Rauto is in accord with our previous hypothesis although it was also anticipated that Autoco would appear with a statistically significant, negative coefficient. The coefficient for Autoco is negative as hypothesized, but falls slightly short of significance at the .10 level. The finding of a negative and statistically significant coefficient for Metaco, the cooperative metal-related trade program, is somewhat surprising, given the adverse employment developments in metal-related industries in the Boston SMSA during the 1970-72 period. The job placement efforts of the coop program officials in these metal-related programs were apparently successful in offsetting these unfavorable employment conditions.

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[1] The mean number of weeks of unemployment encountered by these 367 students was 5.76 weeks, with a standard deviation of 9.73.

[2] Once the high school program variables were entered into the model, the coefficients of the age and race variables became statistically insignificant. Kagegrad, however, has a statistically significant coefficient in only one of the remaining equations, equation number three.

In equation number seven, Labpart, the labor force participation variable, was entered into the model. The sign of the coefficient of Labpart is in accord with the hypothesis of a negative relationship between the degree of labor force participation and the relative amount of unemployment experienced by students. The coefficient for Labpart was significant at the .01 level. The interpretation of this finding is similar to that for Ktwksun, i.e., high degrees of labor force attachment are associated with low relative and absolute amounts of unemployment.

Average Hourly Wages and Gross Incomes of Students During their Junior and Senior Years.

Table 10-7 of Appendix X-B provides a summary of the findings of the multivariate statistical analysis of the average hourly wages earned by students on jobs held during the junior and senior years of high school. The dependent variable is Ktwage, the values of which were calculated by weighting the average wage on each job held by the relative number of weeks of employment provided by each job during the junior and senior years. The mean value of Ktwage was $2.17, with a standard deviation of $.48.

In equation number two, three of the eight explanatory variables (Kagegrad, Fathgrad, and Mothwrks) significantly influenced the average hourly wages of students. The signs for each of these three variables were in accord with our previous hypotheses. Holding all other variables constant, older students, students whose father had graduated from high school, and students whose mother was regularly employed earned higher hourly wages. The coefficients of the family background variables were also rather large. A student whose father had graduated from high school and whose mother was regularly employed could have been expected to earn, _ceteris paribus_, approximately 21-22¢ more per hour than those students whose father did not complete high school and whose mother was not regularly employed. Twenty-two cents was equivalent to more than 10% of the average wage. The overall degree of explanatory power of equation two is rather low. The value of the R^2 is only .039; however, the F-statistic is significant at the .10 level.

In the third equation, the three major high school program variables were entered into the model, but only one, Cproghs, was statistically significant, and its coefficient quite surprisingly was negative. Students in cooperative vocational high school programs earned, ceteris paribus, approximately 13¢ per hour less than students in the general academic programs.

In equation five, the individual trade programs were entered into the model in place of Cproghs and Vproghs. Two of these variables (Auto and Elect) appeared with negative, statistically significant coefficients (at the .10 level). The coefficients for these two program variables were approximately equal in magnitude, -16.1 and -16.6, implying that students in these two programs earned, ceteris paribus, about 16¢ per hour less than students in the general academic programs. The findings in equation six reveal that only the students in the cooperative auto and cooperative electrical trade programs earned hourly wages significantly less than those of students in the general academic programs. The coefficients for Rauto and Relect, the regular auto and electrical trade programs, were not significantly different from zero.

In equation number seven, the variable Ktwksemp was included as an explanatory variable. It was hypothesized that students employed for more weeks during the high school years would, ceteris paribus, earn higher hourly wages. The additional weeks of employment should be associated with an increase in experience that raises the productivity of the student, thus enabling the employer to pay him higher wages. The coefficient for Ktwksemp is positive as hypothesized and is statistically significant at the .01 level. The value of the coefficient for Ktwksemp is .25, implying that every 10 additional weeks of employment, ceteris paribus, would raise the hourly wage of the student by 2.5¢.

One might hypothesize that the effects of employment upon average hourly wages would vary among the four programs. To test for this possibility, the following four employment variables were created: Coopemp, Regemp, Workemp, and Genemp, representing the total number of weeks of employment during the junior and senior years obtained by students in the cooperative vocational, regular vocational, work study, and general academic programs, respectively. The coefficients for these four variables do vary quite substantially, ranging from a low of .075 for Regemp to .536 for Workemp. Each of these coefficients, with the exception of that for Regemp, is significant at the .10 level or below. While the coefficient for the work study employment variable does exceed those of the cooperative vocational and general academic employment variables by .299 and .316, respectively, the difference between the coefficient for Workemp and that for either Coopemp or Genemp was not statistically significant at the .10 level (two-tailed test).

A substantial proportion (approximately 42 percent) of the weeks of employment obtained by students in the cooperative vocational programs was not related to "official coop jobs," i.e., coop students obtained jobs through their own efforts that they held part-time during the school year and/or full-time during the summer months. One might well hypothesize that the weeks of employment on "coop jobs" would affect the hourly wages of these students to a greater extent than the weeks of employment on "non-coop" jobs. To test for this possibility, two additional employment variables Cwksemp and Nwksemp were created and entered into equation eight. Cwksemp and Nwksemp represent the total weeks of employment obtained by cooperative vocational students on "coop" jobs and "non-coop" jobs, respectively, during the junior and senior years of high school.

The findings with respect to the coefficients of these two variables are quite surprising. The coefficient for Nwksemp is equal to .443 and is statistically significant at the .05 level while the coefficient for Cwksemp is only equal to .118 and is not statistically significant at the .10 level. One possible explanation for this result is that coop placement officials were reluctant to ask employers for continuous wage increases for students due to fears that such wage requests would jeopardize future placement prospects.

Table 10-8 of Appendix X-B contains the findings of the multivariate statistical analysis of the total gross earnings of students during the junior and senior years of high school combined. The dependent variable is Hsincom, which was generated by multiplying the total weeks of employment obtained by each student (Ktwksemp) by both the average number of hours worked per week of employment and the average hourly wage earned by the student during the junior and senior years of high school (Ktwage). The mean value for Hsincom was $3,970, with a standard deviation of $2,524.

In equation number two, only the student's personal characteristics, family background variables, and high school location variables appear in the regression model as explanatory variables. Holding all other variables constant, older students, students whose father had graduated from high school, and students whose mother was regularly employed earned higher incomes during the high school years. While the Black race variable (Brace) did not appear in equation two with a statistically significant, negative coefficient as hypothesized, it was statistically significant at the .10 level in each of the other regression equations in Table 10-8. The value of the F-statistic for equation two was 4.47 and was significant at the .01 level.

In equation number three, the major high school program variables were entered in to the regression model as explanatory variables. Only Wproghs, the work study program variable, appears with a statistically significant coefficient. The sign of the coefficient for Wproghs was positive as hypothesized and was statistically significant at the .01 level. The value of the coefficient was equal to 951.2, implying that students in work study programs, ceteris paribus, earned approximately $951 more than students in the general academic programs. Participation in either a cooperative or regular vocational program did not significantly influence gross earned incomes of students during the high school years.

In equation number four, Bstwstd and Othwstd were entered into the regression model in place of Wproghs. The coefficients of both variables are positive and statistically significant although Othwstd's coefficient was significant only at the .10 level while Bstwstd was significant at the .01 level. The coefficient for Bstwstd is substantially larger than that of Othwstd (1652 vs. 683), and the difference between these two coefficients was statistically significant at the .10 level.[1] Students in the specialized, central city work study program, ceteris paribus, earned $1652 more than students in the general academic programs, a rather substantial difference in gross earned incomes.

In equation five and six, the individual trade program variables were entered into the regression models in place of Cproghs and Vproghs. None of the individual trade program variables appeared in these regressions with a statistically significant coefficient. The only trade program variable approximating statistical significance at the .10 level was Miscrft, the miscellaneous trades variable, and the sign of its coefficient was negative in both equations five and six. The findings contained in Table 10-8 thus reveal that participation in a cooperative or regular vocational program, ceteris paribus, did not have a significant impact upon the gross earned incomes of students during the junior and senior years of high school.

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[1] A one-tailed test was used in conducting this test of significance between the two coefficients since it was earlier hypothesized that students in the specialized work study program would obtain higher incomes than those participating in the other work study programs.

Post-High School Labor Market Outcomes: Civilian Labor Force Participation Behavior

Tables 10-9 through 10-14 of Appendix X-B contain the results of the multivariate statistical analysis of the post-high school labor market experiences of the students. Tables 10-9, 10-10, and 10-11 each contain two sets of findings. The first set is based upon 281 observations while the second set (presented in Tables 10-9A, 10-10A, and 10-11A) are based upon 297 observations. The difference between the numbers of observations is primarily due to the fact that some students did not work at all during the post-high school period and, thus, could not be included in regression models which utilized data on average hourly wages as explanatory variables.

The dependent variable in Table 10-9 is Plabpart. This variable represents the percent of time in the post-high school, follow-up period during which the student participated in the civilian labor force.[1] Two additional variables were utilized in the analysis of the post-high school labor force, employment, and unemployment experiences of students. These two variables were Phsed and Milit, both of which are dichotomous, or dummy, variables representing enrollment by the student either in a full-time post-secondary educational institution or a branch of the military service for 39 weeks or longer during the follow-up period.

In equation two of Table 10-9, only the student's personal characteristics, family background variables, high school location variables, and the school enrollment and military service variables, Milit and Phsed, were entered into the regression model. The coefficients for Phsed and Milit were negative as expected and statistically significant at the .01 level. Brace, Sprace, and Mothwrks also appeared in this equation with statistically significant coefficients. The signs of the coefficients for Sprace and Mothwrks were in accord with our previous hypotheses. Spanish-speaking students, *ceteris paribus*, participated in the civilian labor force to a significantly lower degree than white students. Students whose mother was regularly employed, *ceteris paribus*, participated in the civilian labor force to a significantly higher degree than those students whose mother was not regularly employed. The variable Brace, the black race variable, appears with a positive, statistically significant coefficient. This finding that black graduates, *ceteris paribus*, would participate in the civilian labor force to a significantly greater degree than white students (approximately 6% higher) is contrary both to our previous hypothesis and to the findings of the in-school labor force participation models.[1] The F-statistic for equation two (as was true for every following regression in Table 10-9) was significant at the .01 level.

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[1] The number of weeks spent by a student in military service was not included in the calculations of weeks in the civilian labor force.

In equation number three, the major high school program variables were entered into the regression model. Two of the three high school program variables (Vproghs and Wproghs) have positive and statistically significant coefficients. The coefficient for the regular vocational program variable is significant at the .10 level while the work study program variable is significant at the .05 level. The findings indicate that, holding all other variables constant, participation in a regular vocational or a work study program increased post-high school civilian labor force participation by 3.3% and 4.7%, respectively, above that of general academic students. The coefficient of Cproghs, the cooperative vocational program variable, was positive as hypothesized, but was not statistically significant at the .10 level.

In equation four, Bstwstd and Othwstd were entered into the regression model in place of Wproghs. Only the coefficient of Bstwstd, the specialized work study program, was statistically significant. The coefficient of Bstwtd (.127) was also quite substantial and was statistically signficant at the .01 level. On the other hand, students who had been enrolled in other types of work study programs did not participate in the civilian labor force during the post-high school, follow-up period to a significantly greater degree than students in the general academic programs.

In equation number four, the individual trade program variables replaced Cproghs and Vproghs as explanatory variables. Two of these five trade variables (Elect and Metal) have positive and statistically significant coefficients. Students in electrical-related trade programs and metal-related trade programs, ceteris paribus, participated in the civilian force during the post-high school period at a rate 4.7% and 3.5% above that of students in the general academic programs. Both of these coefficients were statistically significant at the .10 level.

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1. One factor that might have influenced these results is the lower successful contact rate for black students in the post-high school, follow-up period. While black students accounted for 34 of the 367 observations (9.26%) in the in-school regressions, they accounted for only 22 of the 281 observations (7.83%) in the post-high school regression equations appearing in Table 10-9.

In equation number five, the major trade program variables (with the exception of Miscrft) were broken down into their cooperative and non-cooperative categories. Only two of these variables (Electco and Rmetal) appear with statistically significant coefficients. The coefficient for Electco, the cooperative electrical trades programs, was equal to .048 and was statistically significant at the .10 level while the coefficient for Rmetal, the regular metal trades programs, was significant at the .05 level.

In equation seven, two of the labor market experience variables (Labpart and Kpwage) were entered into the regression model as additional explanatory variables. The coefficient for Labpart was positive as hypothesized and was statistically significant at the .01 level. Those students with more substantial amounts of labor force experience in the high school years participated in the civilian labor force during the post-high school period to a significantly higher degree. This finding appears to have implications for youth employment policy, particularly with respect to the need for strengthening employment programs for students during the high school years. The transition from high school to the world of work as represented by the degree of labor force participation in the immediate post-high school period appears to be smoother for those students with stronger labor force attachment during the high school years. The coefficient for Kpwage, the post-high school average hourly wage variable, had a positive sign as hypothesized, but was not statistically significant at the .10 level.

The findings in Table 10-9A are based upon 297 observations rather than 281. The results are quite similar to those in Table 10-9 with the following three exceptions. First of all, Kagegrad, the age variable, does appear in equation two with a positive statistically significant coefficient (.10 level) as hypothesized. However, once the high school program variables are entered into the model, the coefficient of Kagegrad declines in value and does not become statistically significant in any of the remaining equations. Secondly, the variable Fathgrad, representing students whose father had graduated from high school, was positive as hypothesized and statistically significant at the .10 level in equation two. This coefficient actually increases in size and statistical significance when the high school program variables are entered into the model. Finally, Metaco, the cooperative metal trades program variable, does become statistically significant at the .10 level in equation number six; thus, two of the cooperative vocational high school programs (Metaco and Electco) and one of the work study programs (Bstwstd) significantly influenced the post-high school civilian labor force behavior of their students.

Post-High School Employment Experiences

The dependent variable in Tables 10-10 and 10-10A of Appendix X-B is Kpwksemp, the total number of weeks of employment obtained by a student. The mean value of this variable for the 297 observations contained in Table 10-10A is 59.1 weeks, with a standard deviation of 26.0 weeks. The mean value of Kpwksemp for the 281 observations in Table 10-10 is approximately 62.8 weeks.

In equation three of Table 10-10, only the personal characteristics of the student, family background variables, high school location variables, and the school enrollment and military service variables, Phsed and Milit, were entered into the model as explanatory variables. The coefficients on Milit and Phsed were negative as expected and were significant at the .01 level. Three other variables (Sprace, Absfath, and Centcit) have coefficients which are statistically significant at either the .05 or .10 level, and the signs of their coefficients are in agreement with our previous hypotheses. Holding all other variables constant, Spanish students, students whose father was not present in the home, and students who attended school in the central city obtained significantly fewer weeks of employment in the post-high school, follow-up period.[1] The coefficients of Kagegrad, Fathgrad, and Mothwrks were positive as hypothesized, but were not statistically significant at the .10 level. The value of the F-statistic for equation number three was equal to 29.45 and was statistically significant at the .01 level.

In equation four, the major high school program variables were entered into the regression model. None of these three program variables was significant at the .10 level. Bstwstd and Othwstd appeared as explanatory variables in place of Wproghs; however, neither of these two work study program variables was significant at the .10 level.

In equation six, the individual trade program variables were entered into the regression model in place of the two vocational program variables, Cproghs and Vproghs. Only one of these five trade program variables (miscrft) had a statistically significant coefficient, and its sign was negative, implying that students who had been enrolled in the miscellaneous trades programs, ceteris paribus, obtained nearly 11.5 fewer weeks of employment during the follow-up period than students in the general academic programs. Given the small number of students in this trade category (6) and the diverse nature of the trade programs included within it, the results are not readily interpretable.

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[1] The coefficient of Centcit did not remain uniformly significant in the remaining equations appearing in Table 10-10. In equations #4, #5, and #7, its coefficient declined in value and failed to become statistically significant at the .10 level.

In equation seven, each of the trade program variables (with the exception of Miscrft) was entered into the regression model after being classified by its cooperative or non-cooperative status. Two of these trade variables, Rmetal and Miscrft, appeared with statistically significant coefficients. Students who had participated in the regular metal trades programs, ceteris paribus, obtained 7.8 more weeks of employment than students in the general academic programs. The coefficient for Rmetal was statistically significant at the .05 level. Miscrft's coefficient remained negative in sign (-11.4) and was significant at the .10 level (two-tailed test).

In equation nine, two labor market experience variables, Ktwksemp and Kpwage, were introduced into the regression model. The results yielded positive coefficients for Ktwksemp and Kpwage as hypothesized; however, only the coefficient for Ktwksemp was statistically significant (.01 level). This particular finding does, however, appear to have substantive policy implications. If one of the goals of youth employment policy is to improve the employability of young persons in the immediate post-high school period, then the findings in Table 10-10 suggest that one mechanism for achieving this goal is to provide them with employment during the high school years. Those students who were employed more frequently while in high school were, ceteris paribus, able to obtain more weeks of employment during the immediate post-high school period (17 to 21 months following graduation).

The findings presented in Table 10-10A are quite similar to those in Table 10-10. A few differences did exist; however, the significance levels of the coefficients for the high school program variables do not change in any substantive manner.

Table 10-11 provides the results of the multivariate statistical analysis of the factors influencing the relative amount of employment obtained by the students during the post-high school, follow-up period. Since the length of the follow-up period varied from 16.5 months to approximately 21 months, it was necessary to create a relative employment variable, Empavl. The value of this variable for a student was generated by dividing the total number of weeks of employment that he obtained during the follow-up period (Kpwksemp) by the total number of weeks covered by the follow-up survey for this student. The mean value of Empavl for the 281 students in Table 10-11 was .804, with a standard deviation of .273.

In equation number three, only the student's personal characteristics, family background variables, school location variables, and the school enrollment and military service variables (Phsed and Milit) were entered into the regression model. The coefficients for both Phsed and Milit were negative as expected and highly significant (.01 level). Only one other variable (Sprace) appeared in this equation with a statistically significant coefficient. The coefficient for Sprace, the Spanish ethnic variable, was negative as hypothesized and was statistically significant at the .05 level. The value of the coefficient for Sprace was -.203, implying that students from Spanish backgrounds were, ceteris paribus, likely to be employed 20% less of the time in the follow-up period than white, non-Spanish students. The value of the F-statistic for equation number three was equal to 27.17 and was statistically significant at the .01 level.

In equation four, the major high school program variables were entered into the model. Only one of the program variables (Wproghs) appeared in this equation with a positive, statistically significant coefficient (.10 level). The value of the coefficient for Wproghs was .058, indicating that students who participated in work study programs were, ceteris paribus, employed approximately 6% more of the time in the follow-up period than students in the general academic programs. As the findings in equation number five reveal, only those students in the specialized, central city work study program were significantly more likely to be employed in the post-high school, follow-up period. The coefficient of Bstwtd was equal to .087 and was statistically significant at the .10 level. In neither equation four nor equation five did the vocational program variables, Cproghs and Vproghs, appear with statistically significant coefficients.

In equation number six, only one of the five trade program variables (Miscrft) had a statistically significant coefficient; however, its sign was negative, implying that students who had been enrolled in one of the miscellaneous trades programs were, ceteris paribus, significantly less likely to have been employed during the follow-up period than students in the general academic programs. The coefficient for Metal was positive as hypothesized, but fell slightly short of significance at the .10 level.

In equation number seven, each of the trade program variables was further classified by its cooperative or non-cooperative status. One of these trade program variables, Rmetal, had a positive and statistically significant coefficient (a value of .106) and was statistically significant at the .05 level. Thus, students in the regular metal trades programs were employed nearly 11% more of the time in the post-high school, follow-up period than students in the general academic programs. In equation number eight, both Electco (the cooperative, electrical-related trade program variable) and Rmetal appeared with positive and statistically significant coefficients, with Rmetal and Electco being significant at the .01 and .10 levels, respectively.[1]

In equation number eight, Ktwksemp was entered into the regression model as an additional explanatory variable. It was hypothesized that students who were employed more frequently during the high school years would also be employed more intensively during the post-high school period. The findings presented in Table 10-11 provide strong support for this hypothesis. The coefficient of Ktwksemp was positive as hypothesized and was statistically significant at the .01 level. The results indicate that each additional ten weeks of employment during the high school years would, *ceteris paribus*, increase the relative amount of employment in the post-high school period by approximately 2.0%. Thus, programs that provide significantly greater employment opportunities for students during the high school years appear to be capable of enhancing the employability of students in the post-high school period. *The school to work transition can thus seemingly be improved by expanding employment opportunities for students during the high school years*.

The findings in Table 10-11A based upon 297 observations are quite consistent with those in Table 10-11. With respect to the coefficients of the high school program variables, only one major difference occurred. In equation number three of Table 10-11A, the coefficient of Wproghs, the work study program variable, was not statistically significant as it was in Table 11-11. When Wproghs was, however, replaced by Bstwstd and Othwstd, the coefficient of Bstwstd became positive and statistically significant in equations four, five, and six as it was in similar regressions in Table 10-11.

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[1] When Ktwksemp was entered into the regression model, the value of the coefficient for Bstwstd was reduced in value by more than one-half (.088 to .043) and was no longer statistically significant at the .10 level. This particular finding tends to support our earlier remarks regarding the potential effectiveness of work-study programs. Any impacts of such programs on the post-high school labor force status of participants will be produced primarily by their ability to provide students with additional employment experiences during the high school years.

Unemployment Experiences During the Follow-Up Period

The unemployment experiences of the students during the post-high school, follow-up period are examined in Table 10-12. The dependent variable, Punemprt, was constructed by dividing the total number of weeks of a student's unemployment during the post-high school, follow-up period by the total number of weeks the student actively participated in the civilian labor force. This variable thus represents the relative amount of unemployment encountered by a student during the post-high school period. The mean value of Punemprt for these 281 students was .083, with a standard deviation of .154.

In equation two, only the student's personal characteristics, family background variables, high school location variables, and the post-high school educational enrollment and military service variables were entered into the regression model. Only one of these variables, Absfath, had a statistically significant coefficient. The coefficient of Absfath was positive as hypothesized, indicating that students whose father was absent from the home were, *ceteris paribus*, likely to encounter significantly higher degrees of unemployment during the post-high school period. The overall degree of explanatory power of this regression model was, however, quite low. The value of the R^2 for equation number two was only .020, and the F-statistic was not significant at the .10 level.

In the third equation, none of the three high school program variables appeared with a statistically significant coefficient. Again, the F-statistic for the entire regression equation was not statistically significant at the .10 level. In equations four and five, the individual trade program variables appear in the regression models in place of Cproghs and Vproghs. Only one of the trade program variables, Miscrft, had a statistically significant coefficient in these two equations. The sign of the coefficient of Miscrft was positive, implying that students who had been enrolled in the miscellaneous trades programs experienced, *ceteris paribus*, higher relative amounts of unemployment than students in the general academic programs. The F-statistics for equations four and five were also, however, not statistically significant at the .10 level.

In equations six and seven of Table 10-12, variables representing the degree of labor force participation of the students during both the high school years and the post-high school, follow-up period were entered into the regression model. It was hypothesized that students with greater degrees of attachment to the labor force during the in-school and post-high school periods would, ceteris paribus, experience less severe unemployment problems in the post-high school period. The findings support these hypotheses. The coefficient of Labpart was negative as hypothesized and was statistically significant at the .01 level in equation six while the coefficients of both Labpart and Plabpart were negative and statistically significant at the .01 level in equation number seven.

These findings provide additional support for the previous views regarding the potentially key role of school programs in strengthening the labor force attachment of students during the high school years. Students with high degrees of attachment to the labor force during the high school years, ceteris paribus, not only participated in the civilian labor force more frequently in the post-high school period, but were also less likely to be unemployed while participating in the civilian labor force. The additional employment experiences of students in the high school years thus appear to improve their ability to obtain employment more readily upon graduation from high school.

Average Hourly Wages in The Follow-Up Period

Table 10-13 presents the findings of the multivariate statistical analysis of the hourly wages earned by the students on jobs held during the post-high school, follow-up period. The dependent variable is Kpwage, values of which were obtained by weighting the average hourly wage of each job held by a student during the follow-up period by the relative number of weeks for which the job was held. The mean hourly wage earned by these 280 students during the post-high school period was \$2.91, with a standard deviation of \$.62.

In regression equation number one, only the personal characteristics of the student, family background variables, and high school location variables were entered into the model as explanatory variables. Two of these variables, Kagegrad and Fathgrad, had positive, statistically significant coefficients in accord with our previous hypotheses. Holding other variables constant, older students and students whose fathers had graduated from high school earned higher hourly wages in the post-training period. The value of R^2 for equation number one was, however, only equal to .041, and its F-statistic was not significant at the .10 level.

None of the major high school program variables appeared in equation number two with a statistically significant coefficient. The F-statistic for equation number two was also not large enough to be judged statistically significant at the .10 level. In equations four, five, and six the individual work study and trade program variables were entered into the regression model in place of the three major high school program variables. None of these individual program variables ever appeared in these equations with a statistically significant coefficient. The findings thus indicate that participation in cooperative vocational and work study high school programs generated no significant independent impact upon the hourly wages of students in the post-high school follow-up period.

The nature and degree of the employment experiences of the students did, however, significantly influence their average hourly wages. In equations three through six, Kpwksemp was entered into the regression model as an additional explanatory variable. It was hypothesized that, holding all other factors constant, students who were employed for greater numbers of weeks during the follow-up period would earn higher hourly wages. The additional job experience acquired by these students should have raised their productivity and thus led to higher hourly wages in accord with human capital theory. It should also be noted that age has been controlled for in each of these equations; thus, Kpwksemp is simply not picking up the effects of the aging process on young workers increasing acceptability to employers offering "adult male" jobs with their associated higher hourly wages.[1]

The coefficient of Kpwksemp was positive as hypothesized and was statistically significant at the .01 level in each equation in which it appeared in Table 10-13. The value of the coefficient for Kpwksemp in equations three through five was approximately .63, implying that each additional week of employment in the follow-up period raised the hourly wage by slightly more than .6 cents. This effect is rather substantial in consideration of the fact that the mean hourly wage was only $2.91. Part of this wage effect is, however, quite likely due to wage gains produced by workers changing jobs rather than being entirely due to economic payoffs to young workers from specific on-the-job training within a given firm.

In equation number six, Ktwksemp was entered into the regression model along with Kpwksemp. It was hypothesized that students employed for greater numbers of weeks during the high school years would, ceteris paribus, earn higher hourly wages during the post-high school period. The findings provide support for this particular hypothesis. The coefficient of Ktwksemp was positive as hypothesized and was statistically significant at the .05 level. The size of the coefficient for Ktwksemp was .27, or approximately one-half that of the coefficient for Kpwksemp (.52), indicating that employment in the post-high school period had a more substantial impact upon hourly wages than employment during the in-school years.

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[1] Labor market economists have disagreed as to whether age or years of experience is the appropriate variable to include in wage or earnings models. For a brief review of the issues involved in this debate, see: (i) Osterman, Paul, "An Empirical Study of Labor Market Segmentation," Industrial and Labor Relations Review, July 1975, pp. 508-523; (ii) Kruse, William J., "An Empirical Study of Labor Market Segmentation: Comment," Industrial and Labor Relations Review, January 1977, pp. 219-220.

The findings contained in Table 10-13 do, however, provide additional evidence of the key role played by in-school employment experiences in improving the transition from school to work. Students who were employed more frequently during the high school years tended to obtain, ceteris paribus, more weeks of employment, experience lower degrees of unemployment, and earn higher hourly wages during the post-high school, follow-up period.

Table 10-14 of Appendix X-B presents the findings of the multivariate statistical analysis of the hourly wage earned by students on the current or most recent job that they held at the time of the final interview. The dependent variable is Lstwage. The bulk of the responses pertain to the hourly earnings of the students on jobs held during the October-December period of 1973. The mean value of Lstwage was $3.37, with a standard deviation of $1.01.

In equation number one, only the personal characteristics of the student, family background variables, and high school location variables were entered into the regression model as explanatory variables. Only one of these variables (Centcit) had a statistically significant coefficient. The sign was negative as hypothesized, given the adverse employment developments in the central city's economy during this period, and was significant at the .10 level. The overall degree of explanatory power of regression model number one was however quite low. The R^2 for equation one was only .034, and the F-statistic was not significant at the .10 level.

In equation number two, the major high school program variables were entered into the regression model. None of these program variables entered the model with a statistically significant coefficient. Again, the explanatory power of the model remained quite low. The F-statistic was not large enough to be judged statistically significant at the .10 level.

Beginning with equation three, the occupations of the current or most recent jobs held by the students at the time of the last interview were entered into the regression model. Occupations were classified into the following six categories based upon census occupational codes: professional and managerial, clerical and sales, craftsmen, operatives except transport equipment, transport equipment operatives, and laborers or low-level service occupations. Each of these occupational variables was constructed as a dichotomous, or dummy, variable that was assigned the value of either one or zero. The laborer and low-level service occupations served as the base group for this analysis. Given the occupational earnings structure in the Boston SMSA as of 1970, it was anticipated that the coefficients for each of the occupational groups entered into the regression model would be positive and statistically significant.

In equation three, three of the five occupational variables appeared with positive and statistically significant coefficients. The coefficients for Crafts, Transp, and Opert were statistically significant at the .01, .05, and .10 levels, respectively. The values of these coefficients in equation number three ranged from 26.6¢ for operatives, except transport, to 53.2¢ for transport equipment operatives. The inclusion of the occupational variables in equation three increased the explanatory power of the wage regression model; however, the F-statistic was still not significant at the .10 level.

In equations four and five of Table 10-14, the individual trade program variables were entered into the regression model in place of Cproghs and Vproghs. Only the miscellaneous trades variables, Miscrft, had the statistically significant coefficient in these two equations, and its sign was negative. The F-statistics for both of these equations were, however, too low to be judged statistically significant at the .10 level.

In equation number six, the number of weeks of employment obtained by the students during the entire post-high school period (Kpwksemp) was entered into the regression model as an additional explanatory variable. It was hypothesized that the hourly wage received by the student on his current or most recent job would be positively influenced by the number of weeks of employment he obtained during the post-high school period. The findings support this hypothesis. The coefficient of Kpwksemp was positive in both of the equations in which it appeared (equations six and seven) and was statistically significant at the .01 level. The value of the coefficient of Kpwksemp was 1.12 in equation number six, indicating that each additional week of employment in the post-high school period increased the final hourly wage by approximately 1.1¢. The addition of Kpwksemp to equation number six significantly raised the explanatory power of the regression model. The R^2 of equation number six was equal to .166, and the F-statistic was statistically significant at the .01 level.

In equation number seven, Ktwksemp, the number of weeks of the student's employment during the junior and senior years, was entered into the regression model together with Kpwksemp. It was hypothesized that students who obtained additional weeks of employment during the high school years would, ceteris paribus, earn higher hourly wages on their current or most recent post-high school job. The coefficient for Ktwksemp was positive as hypothesized, but it was not statistically significant at the .10 level.[1] In equation number seven, one of the trade program variables (Autoco) appeared with a positive and statistically significant coefficient. Students who had been enrolled in the cooperative auto-related trade programs earned, ceteris paribus, approximately 38¢ more per hour on their last post-high school job than students in the general academic programs. The coefficient of Autoco was, however, only statistically significant at the .10 level.

The findings presented in Table 10-14 on the determinants of the hourly wages earned by students on their last post-high school job seem to indicate a potentially key role for school placement assistance. The primary factors influencing the final hourly wages of students were the amount of employment in the post-high school period and the types of employment opportunities in terms of occupations that they obtained. Given the prevailing local inter-occupational wage structure, earnings of students will be positively influenced by the ability of school placement officials to obtain jobs for students in selected crafts-related and operatives occupations. While employment continuity does matter in the sense of positively affecting wages, the types of employment opportunities obtained by students are also key determinants of their hourly wages in the post-high school period.

Job Satisfaction of Students in the Post-High School Period

During the final interview, the students were asked to assess their overall degree of satisfaction with their current job. Responses were available from 235 students, and the findings of the multivariate statistical analysis of these responses are presented in Table 10-15. The mean value of Kpsatis was 2.26, with a standard deviation of 1.12.

In equation number two, only two variables, Brace and Lstwage, had statistically significant coefficients. Holding other factors constant, black students were more satisfied with their jobs than whites and as anticipated students earning higher hourly wages were more likely to be satisfied than those earning lower wages. The overall degree of explanatory power of equation number two was, however, rather low. The value of the R^2 was only .055, and the F-statistic was not statistically significant at the .10 level.

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[1] When Ktwage, the average hourly wage earned by students in the high school years, was entered into the equation in place of Ktwksemp, it appeared with a positive and statistically significant coefficient (.05 level). This particular finding seemed to indicate that the types of in-school employment experiences of students rather than the absolute amount of those experiences were a key factor in influencing their post-high school wages.

In regression equation number three, the major high school program variables were entered into the model. The coefficient of Cproghs, the cooperative vocational program variable, was negative and statistically significant at the .01 level. Holding other variables constant, students who had been enrolled in cooperative vocational programs were more highly satisfied with their jobs than students in the general academic programs. No other program variable appeared in this equation or any of the remaining equations in Table 10-15 with a statistically significant coefficient. The addition of the high school program variables in equation three raised the value of the R^2 to .118, and the F-statistic for this equation was statistically significant at the .01 level.

In equation number five, two additional variables, Lsthrs and Relastd, were added to the regression model. Lsthrs simply represents the weekly number of hours that the student worked on his current job.[1] It was expected that students working fewer hours of work per week would be less satisfied with their job. Relastd is a dichotomous or dummy variable representing the student's view as to whether or not his current job was related to his high school program. It was hypothesized that those students who held jobs which they believed to be related to their high school program would, ceteris paribus, be more satisfied with their job. The findings provide support for both of these hypotheses. The coefficients for both Lsthrs and Relastd were negative as hypothesized and statistically significant at .10 level.

In equation six, five occupational variables representing the occupations of the jobs held by the students at the time of the last interview were entered into the regression model. Laborer and low-level service occupations again served as the base group. It was hypothesized that students employed in occupational groups outside of the laborer and low-level service occupations would, ceteris paribus, be more satisfied with their job. The results of the analysis are mixed. Only one of the occupational groups, Profmn, representing employment in a professional, technical or managerial position, appeared with a negative and statistically significant coefficient (.10 level) as hypothesized.

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[1] The mean value of Lsthrs was 39.6, with a standard deviation of 7.0. Nearly 90% of these 235 students worked 35 or more hours per week on their last post-high school job.

The findings presented in Table 10-15 have demonstrated that the job satisfaction of students was significantly influenced by the hourly wage of the job, the weekly number of hours of work that the job provided, and the occupational area of the job. In addition, students who had been enrolled in cooperative vocational programs during high school tended to be significantly more satisfied with their jobs even after controlling for wages, hours, occupations, and the training related nature of the jobs. A straightforward interpretation of this particular result cannot readily be offered. One might argue that cooperative vocational students had more clearly defined occupational objectives than students in the other types of high school programs and were able upon graduation to acquire jobs that were more frequently in accord with those objectives.

Educational and Military Service Status

The final section of this chapter is devoted to a discussion of the findings of the multivariate statistical analysis of students' decisions to withdraw from the civilian labor force during the follow-up period to enroll in school or enlist in a branch of military service. The findings are presented in Tables 10-16, 10-16A, and 10-16B.

In Table 10-16, the dependent variable, Lowpart, is a dichotomous, or dummy, variable.[1] Of the 299 students included in this analysis, 45 or 15.1% had attended school or served in a branch of the military for 39 or more weeks during the follow-up period. It was hypothesized that students in the cooperative high school programs would, ceteris paribus, be less likely to withdraw from the civilian labor force for such extended periods, given the fact that such programs were designed to provide participants with the skills training, work behavior training, and in-school employment experiences that would improve their transition from school to work upon graduation. The coefficient of Cproghs was negative as hypothesized in equation three and was statistically significant at the .10 level. No other explanatory variable in equation three had a statistically significant coefficient. The value of the R^2 for equation three (.020) was, however, very low, and the F-statistic was not significant at the .10 level.

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[1] The existence of a dichotomous dependent variable does create particular problems for the use of ordinary least squares in estimating the coefficients of the model. It has been shown that use of OLS estimating techniques under such conditions will produce unbiased but not efficient estimates of the coefficients. See: Johnston, J., Econometric Methods, Mc-Graw Hill Book Co., N.Y., 1963.

It has been suggested that equations containing dichotomous dependent variables be estimated with logit techniques rather than ordinary least squares techniques. The authors did not do so given an unavailability of a logit computer program within the university's computation center at the time during which the regression analysis was conducted.

In equations four, five, and six of Table 10-16, two variables representing the in-school employment experiences of students, Ktwksemp and Ktwage, were entered into the regression model. The coefficients for these employment and wage variables were negative as hypothesized and statistically significant at the .01 and .05 levels, respectively; however, none of the F-statistics for these equations was significant at the .10 level.

The results in Table 10-16A with respect to the impact of high school programs upon students' decisions to continue full-time in school upon graduation are subject to somewhat different interpretations. On the one hand, it might be argued that students in the general academic programs were significantly more likely to attend a post-secondary educational institution full-time in the follow-up period due to their lack of preparation for the labor market. Given their deficiencies in the vocational skills required for employment in the more desirable occupations that are open to high school graduates, these students may have opted for additional education to equip themselves with some type of marketable skill(s) that their high school programs failed to provide them.

On the other hand, it might be argued, as some students themselves did during the interviews, that the vocational and work study programs failed to provide them with sufficient academic preparation to allow them to gain entry into various post-secondary educational institutions.

In Table 10-16B, the decisions of students to enlist in a branch of the military service are examined. Thirty-three of these 297 students, or 11.1%, had served in a branch of the military service for 39 or more weeks during the follow-up period. The dependent variable in Table 10-16B is Milit, a dichotomous variable taking on the value of one if the student had served in a branch of military service for 39 or more weeks.

None of the regression equations presented in Table 10-16B had a statistically significant degree of explanatory power. Equation six which contained the most comprehensive list of explanatory variables had an R^2 of only .048.

Three of the variables appearing in regression equation six (Othwstd, Ktwage, and Unemprte) did have coefficients that were statistically significant at either the .05 or .10 levels. Students who earned higher hourly wages while employed during the high school years were, ceteris paribus, significantly less likely to enlist in the military service while students who encountered relatively severe unemployment problems during the high school years were significantly more likely to enlist in the military service. While these individual results do indicate that the in-school employment experiences of students influenced the probability of enlistment, it should be noted that the F-statistic for equation six was not statistically significant at the .10 level.

309

Chapter X: Appendix X-A

Definitions of the Variables

As was noted in the introduction to this chapter, multiple regression techniques were used in estimating the independent impact of the cooperative and non-cooperative high school programs upon a variety of labor market and educational outcomes, including both in-school and post-high school labor market experiences of the students. Eight of the dependent variables examined in this chapter are related to the labor market experiences of students during their junior and senior years of high school. The findings of the multiple regression analysis of the in-school variables are presented in Tables One through Eight of Appendix B.[1] In addition to these eight in-school labor market variables, ten different post-high school labor market and educational variables are also analyzed with the aid of multiple regression techniques. The findings of the analyses of labor market outcomes appear in Tables 9 through 14 of Appendix B.[2] The findings of an analysis of the determinants of the job satisfaction of these students are presented in Table 15, and the factors influencing their decisions to either enroll in a post-secondary educational institution or enlist in a branch of the military service are analyzed in Tables 16 through 16B.

The definitions of the variables (both dependent and independent) appearing in the multiple regression models of the labor force, employment, unemployment, and earnings' experiences of students during their high school years and during the post-high school, follow-up period are presented below:

I. Dependent Variables[3]

LABPART -- The proportion of time during the junior and senior years of high school in which the student was an active participant in the labor force. The value of this variable was obtained by dividing the total number of weeks in the labor force during the 6-1-70 to 5-31-72 time period by 104 weeks, the maximum number of weeks the student could have participated in the labor force.

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1. Each of these eight regression models was estimated on the basis of 367 observations. In order to maintain an equal number of observations for each model, those students who could not be successfully contacted at any time during the post-high school period were eliminated.

2. The number of observations in the post-high school regression models typically varied from 281 to 297. For several of these variables, separate regressions were run on the basis of 281 and 297 observations. The findings are presented separately in Tables 9 and 9A. The lower number of observations in those equations with only 281 cases is primarily due to missing or nonexistent wage data for 16 students.

3. Several of the variables listed as dependent will also appear as explanatory variables in other models of labor market outcomes.

KTWKSEMP[1] -- The total number of weeks of employment obtained by the student during the junior and senior years of high school combined. The time period utilized to represent the junior and senior years of high school is the 6-1-70 to 5-31-72 period, a full two years.

KJWKSEMP -- The total number of weeks of employment obtained by the student during the junior year of high school, the 6-1-70 to 5-31-71 time period.

KSWKSEMP -- The total number of weeks of employment obtained by the student during the senior year of high school, the 6-1-71 to 5-31-72 time period.

KTWKSUN -- The total number of weeks of unemployment encountered by the student during the junior and senior years of high school combined.

UNEMPRTE[2] -- The proportion of time (in weeks) spent in the labor force by the student during the junior and senior years of high school during which he was unemployed.

KTWAGE[3] -- The weighted average hourly wage earned by a student on jobs held during the junior and senior years of high school combined.

HSINCOM[4] -- Total gross earnings from employment during the junior and senior years of high school combined.

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[1] If a student had been employed on a coop job while in high school, each week spent working full-time was treated as two weeks of part-time employment with the weekly hours of work divided in two; e.g., a 40-hours per week job was treated as two weeks of employment for 20 hours per week.

[2] This variable is calculated on the basis of data similar to that generated by the Bureau of Labor Statistics in its Work Experience Survey which is conducted as a supplement to the March Current Population Survey (CPS)

$$\text{UNEMPRTE} = \frac{\text{KTWKSUN}}{\text{KTWKSEMP} + \text{KTWKSUN}}$$

The value of UNEMPRTE for a student is, thus, the ratio of the number of weeks of unemployment during the junior and senior years of high school combined (KTWKSUN) to the total time (in weeks) that he spent in the civilian labor force (KTWKSEMP + KTWKSUN) during those same two years.

[3] The hourly wage figure is a weighted mean wage earned by students during the junior and senior years of high school. The weight for each individual wage utilized in obtaining the mean was the ratio of total weeks of employment on each job to total weeks of employment during the junior and senior years of high school.

[4] This gross earnings variable was calculated in the following manner:

$$\text{HSINCOM} = \text{KTWKSEMP} \quad (X) \ \text{KTWAGE} \quad (X) \ \text{KTHRS}$$

Both KTWKSEMP and KTWAGE have been defined in the text above. KTHRS is simply the weighted mean number of hours of work per week while employed during the junior and senior years of high school.

PLABPART[1] -- The proportion of time during the entire post-high school, follow-up period in which the student actively participated in the civilian labor force. The value of this variable was derived by taking the ratio of total weeks spent by the student in the civilian labor force (6-1-72 to date of final interview) to the total number of weeks in the follow-up period.

KPWKSEMP -- The total number of weeks of employment obtained by the student during the post-high school follow-up period.

EMPAVL -- The proportion of time in the entire post-high school, follow-up period during which the student was employed. The value of this variable was derived by taking the ratio of the total number of weeks of employment obtained by the student (KPWKSEMP) to the total number of weeks in the post-high school follow-up period.

PUNEMPRT -- The proportion of time spent in the civilian labor force by the student in the post-high school period during which he was unemployed.

KPWAGE -- The weighted average hourly wage earned by a student on jobs held during the post-high school, follow-up period.

LSTWAGE -- The hourly wage being earned by the student on the current or most recent job held by him at the time of the final post-high school interview.

KPSATIS -- A measure of the student's overall satisfaction with the job that he was holding at the time of the final post-high school interview. The job satisfaction variable is an ordinal measure taking on one of the following six different values:

1. Very satisfied
2. Quite satisfied
3. Somewhat satisfied
4. Not very satisfied
5. Not at all satisfied
6. Extremely dissatisfied

LOWPART -- A dummy variable representing a low degree of labor force attachment in the post-high school, follow-up period due to enrollment in an educational institution or a branch of the military service for 39 or more weeks of the follow-up period.

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[1] The duration of the follow-up period varied from one student to another. The length varied from a minimum of 16 1/2 months to a maximum of 21 months. The final interviews with students were conducted between mid-October 1973 and February of 1974.

II. Independent Variables

KAGEGRAD -- Age of the student, in years, at the time of graduation from high school.

BRACE -- A dummy variable for the race of a student that takes on the following values:

= 1 if student is black
= 0 if other

SPRACE -- A dummy variable for the ethnic status of a student that takes on the following values:

= 1 if student is a member of a Spanish-speaking group
= 0 if other

CENTCIT -- A dummy variable for the location of the student's high school

= 1 if high school were located in the central city of the metropolitan area
= 0 if other

INDSUB -- A dummy variable for the location of a student's high school

= 1 if high school were located in one of two inner suburban cities
= 0 if other

FATHGRAD -- A dummy variable for educational attainment of the student's father.

= 1 if father completed high school
= 0 if other

MOTHGRAD -- A dummy variable for educational attainment of student's mother.

= 1 if mother completed high school
= 0 if other

ABSFATH -- A dummy variable for presence of father in the home.

= 1 if father was not present in the home
= 0 if father was present in the home

SES[1] -- An index of socio-economic status of the student's family based on the occupation of his father.

MOTHWRKS -- A dummy variable for regular employment status of the student's mother.

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[1] The values for the index of socio-economic status were derived from the ranking system developed by Albert J. Reiss. See: Reiss, Albert J., Occupations and Social Status, New York, Free Press, 1961.

CPROGHS -- A dummy variable for the general program category of a student's course of study.

= 1 if the student participated in a cooperative vocational education program
= 0 if other

VPROGHS -- A dummy variable for the general program category of a student's course of study.

= 1 if student participated in a regular vocational education program
= 0 if other

WPROGHS -- A dummy variable for the general program category of a student's course of study.

= 1 if the student participated in a work study program
= 0 if other

BSTWSTD -- A dummy variable for participation in a specialized work study program.

= 1 if the student participated in a specialized, central city work study program
= 0 if other

OTHWSTD -- A dummy variable for participation in a work study program other than the specialized, central city program.

= 1 if the student participated in any other work study program
= 0 if other

AUTO[1] -- A dummy variable for participation in an auto-related trade program.

= 1 if student did participate in an auto-related trade course
= 0 if other

AUTOCO -- A dummy variable for participation in a cooperative, auto-related trade program.

= 1 if student did participate in a cooperative auto-related trade program
= 0 if other

RAUTO -- A dummy variable for participation in a regular vocational, auto-related trade program.

= 1 if student did participate in a regular,auto-related trade program
= 0 if other

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[1] Among the vocational programs appearing under this category are auto body and auto mechanic courses.

CARP[1] -- A dummy variable for participation in a carpentry or woodworking related trade program.

= 1 if student did participate in a carpentry or woodworking related course
= 0 if other

CARPCO -- A dummy variable for participation in a cooperative, carpentry-related trade program.

= 1 if student did participate in a cooperative, carpentry-related trade program
= 0 if other

RCARP -- A dummy variable for participation in a regular vocational, carpentry-related trade program.

= 1 if student did participate in a regular vocational, carpentry-related trade program.
= 0 if other

METAL[2] -- A dummy variable for participation in a machine or metal fabrication trade program.

= 1 if student did participate in a machine or metal fabrication trade program
= 0 if other

METACO -- A dummy variable for participation in a cooperative, machine or metal fabrication trade program.

= 1 if student did participate in a cooperative, machine or metal fabrication program
= 0 if other

RMETAL -- A dummy variable for participation in a regular vocational, machine or metal fabrication trade program.

= 1 if student did participate in a regular vocational, machine or metal fabrication program
= 0 if other

ELECT[3] -- A dummy variable for participation in an electrical-related vocational trade program.

= 1 if student did participate in an electrical-related trade program
= 0 if other

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[1] Among the vocational programs appearing under this category are carpentry, cabinetmaking and woodfinishing courses.

[2] Among the vocational programs appearing under this category are machine, machine-welding, metal fabrication, and sheetmetal courses.

[3] Among the vocational programs appearing under this category are electrical and electronics courses.

ELECTCO -- A dummy variable for participation in a cooperative, electrical-related trade program.

= 1 if student did participate in a cooperative, electrical-related trade program
= 0 if other

RELECT -- A dummy variable for participation in a regular vocational, electrical-related trade program.

= 1 if student did participate in a regular vocational, electrical-related trade program
= 0 if other

MISCRFT[1] -- A dummy variable for participation in one of the remaining trade programs in which students were enrolled.

= 1 if student did participate in one of the miscellaneous trade programs.
= 0 if other

COOPEMP -- The number of weeks of employment during the junior and senior years obtained by a student in a cooperative vocational education program. This variable is simply the product of CPROGHS and KTWKSEMP.

REGEMP -- The number of weeks of employment during the junior and senior years obtained by a student in a regular vocational education program. This variable is simply the product of VPROGHS and KTWKSEMP.

WORKEMP -- The number of weeks of employment during the junior and senior years obtained by a student in a work study program. This variable is simply the product of WPROGHS and KTWKSEMP.

GENEMP -- The number of weeks of employment during the junior and senior years obtained by a student in a general academic program. This variable is simply the product of GPROGHS and KTWKSEMP.

CWKSEMP -- The number of weeks of employment in coop jobs obtained by a student in a cooperative vocational education program during the junior and senior years of high school combined.

NWKSEMP -- The number of weeks of employment in non-coop jobs obtained by a student in a cooperative vocational education program during the junior and senior years of high school combined.

NTWKSEMP -- The number of weeks of employment obtained by a student in a program other than a cooperative vocational education program during the junior and senior years of high school combined.

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[1] Among the vocational programs appearing under this category of miscellaneous trades are upholstery, painting and decorating, and drafting courses.

TWKSEMP -- The number of weeks of employment obtained by a student during the junior and senior years of high school and during the post-high school follow-up period combined. This variable is simply the sum of KTWKSEMP and KPWKSEMP.

KJWAGE -- The weighted mean hourly wage earned by students on jobs held during the junior year of high school.

KSWAGE -- The weighted mean hourly wage earned by students on jobs held during the senior year of high school.

PROFMAN[1] -- A dummy variable representing employment in a professional, technical, or managerial occupation as of the last interview.

= 1 if student was employed in a professional, technical, or managerial occupation
= 0 if the student was either not employed or employed in a different occupational category.

CLERSL -- A dummy variable representing employment in a clerical or sales occupation as of the last interview.

= 1 if the student was employed in a clerical or sales occupation
= 0 if the student was either not employed or employed in a different occupational category

CRAFTS -- A dummy variable representing employment in a crafts-related occupational category, including apprenticeship positions, as of the last interview.

= 1 if student was employed in a crafts-related occupational category, including apprentice-related positions.
= 0 if student was either not employed or employed in a different occupational category.

OPERT -- A dummy variable representing employment in a blue-collar operative occupation, excluding transport operatives, as of the last interview.

= 1 if student was employed in a blue collar, operative position
= 0 if student was either not employed or employed in a different occupational category

TRANSP -- A dummy variable representing employment in a transport equipment operative occupation as of the last interview.

= 1 if student was employed in a transport operative occupation
= 0 if student either was not employed or employed in a different occupation

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[1] The occupational dummy variables are based on groupings of occupational codes utilizing the occupational classification system of the Bureau of the Census.

LABSERV -- A dummy variable representing employment in a laborer or low-level service occupation as of the last interview.

= 1 if employed in a laborer or low-level service occupation
= 0 if student either was not employed or employed in a different occupation

LSTHRS -- The number of weekly hours of work on the job held by the student as of the last interview.

RELASTD -- A dummy variable representing the view of the student as to whether the job he currently held was related to his high school program.

= 1 if student felt the job was related to his high school program
= 0 if student did not feel that the job he held was related to his high school program.

MILIT -- A dummy variable representing participation in a branch of the military service for 39 weeks or longer during the post-high school, follow-up period.

= 1 if the student was engaged in military service for 39 or more weeks during the post-high school period
= 0 if other

PHSED -- A dummy variable for full-time attendance in a post-high school educational program for 39 or more weeks during the follow-up period.

= 1 if student was enrolled full-time in an educational program for 39 or more weeks during the follow-up period.
= 0 if other

Constructing the Models

The primary objective of this chapter was to determine whether or not participation in various types of cooperative high school programs had a positive, independent impact upon the in-school and post-high school labor market experiences of students. In other words, did the students in the cooperative high school programs tend to have more favorable labor market experiences relative to their counterparts in the non-cooperative programs. Since various factors other than participation in a particular type of high school program can also be expected to influence the labor market experiences of students, these intervening variables must be controlled for in the analysis.[1] While multivariate statistical techniques, such as multiple regression analysis, can be utilized in attempts to control for the effects of such intervening variables, the analysis cannot properly proceed until three basic issues have been addressed.

The first major issue involves the selection of a set of variables that will represent the labor market experiences of students upon which the analysis will be concentrated; i.e., the choice of the dependent variables. The second major issue is concerned with the choice of the appropriate set of intervening variables. The third issue is related to the definition and measurement of the school program variables themselves. These schooling inputs, i.e., the "treatment variables," can be defined in a number of different manners, ranging from very broad types of program categories, such as cooperative vocational to the specific curriculum inputs of each program.

The labor market outcomes upon which the analysis will be focused include the eight labor market related variables reflecting major aspects of the students' labor force, employment, unemployment, and earnings' experiences during the high school years, as well as seven similar variables representing their experiences in the labor market during the post-high school follow-up period.

One might well anticipate that cooperative high school programs will not be equally successful in positively affecting each specific type of labor market outcome. For example, cooperative high school programs may be successful in providing students with more weeks of employment during the high school years, but yet not succeed in placing them in jobs that will provide higher hourly wages. Knowledge of these differential impacts of the cooperative programs is valuable for both future policy-making and program administration purposes.[1]

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[1] Since students were not randomly assigned to these various types of high school programs, the participants in the non-cooperative programs cannot be regarded as a pure control group whose labor market experiences can be directly compared with those of the cooperative vocational and non-vocational students. Certain variables, including academic aptitudes, motivation, diligence, and other personality traits, may well be correlated with the student's choice of high school program.

The second major issue is related to the choice of an appropriate set of intervening variables. The selection should be based upon an explicit model (or models) of behavior for each of the labor market variables being analyzed. A given variable, such as the age or race of the student, should be entered into the model as an intervening variable only if one can provide justification for its inclusion. This would normally require an accompanying statement (a hypothesis) as to the expected effect of each variable; i.e., the expected sign of the coefficient for each such variable.

Four general categories of explanatory variables (independent variables) are utilized in the analysis of the labor market experiences of students during the high school and post-high school years. Each of these four categories is composed of two or more individual variables. These four categories include the following: (1) personal characteristics of the students, including their age, race, and/or ethnic background;[2] (2) parental and community background variables, such as the educational attainment of the student's father and mother, the presence of the father in the student's home during the high school years, the normal employment status of the mother, and the location of the student's residence within the metropolitan area; (3) the type of high school program in which the student was enrolled during the junior and senior years of high school, including the cooperative or non-cooperative nature of the program. In addition, for those students enrolled in a vocational education program, the general trade area in which he was being trained was also entered into the model. (4) Labor market experience variables were entered into the equations as explanatory variables in a number of the regression models. For example, in the model designed to examine the determinants of the labor force participation behavior of the students during their junior and senior years, the average hourly wage earned by students was included as an explanatory variable. This wage variable was included in the model to determine whether higher wages would, ceteris paribus, induce students into participating in the labor force for a greater number of weeks during the high school years. In addition, a number of the in-school labor market experience variables were utilized as explanatory variables in the regression models of the student's post-high school employment and earnings experiences.

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[1] A more detailed discussion of the methodological issues involved in analyzing the role of various labor market factors in producing income gains for participants in employment and training programs is presented in the following publication: see: Sum, Andrew; Mazzeo, Katherine; McLaughlin, Francis; and Zornitsky, Jeff; Benefit-Cost Analysis and Its Role in the Evaluation of CETA Title One Programs at the State and Local Level, Employment and Training Administration, Region One, Boston, May 1977.

[2] Because of the inability to obtain IQ scores for all students, IQ scores were excluded as an explanatory variable. A series of separate regressions were run for those students for whom IQ scores were available, and at no time did the test scores appear in an equation with a statistically significant coefficient.

The High School Program Variables

Several different methods of classifying the high school program variables were utilized in the multivariate statistical analysis. The first such method involved the classification of each individual high school program into one of the following four general program categories: cooperative vocational, regular vocational, work study, and general academic. The use of such dichotomous explanatory variables (i.e., variables that take on a value of either zero or one) in a multiple regression analysis requires the selection of one such group as a base.[1] For purposes of this analysis, the general academic programs were selected as the base group against which each of the other program categories would be compared.

The second method of classifying these program variables involved breaking down the work study programs into two separate categories (a central city, work study high school program characterized by intensive job placement and staff support and all other work study programs) and placing each vocational education program into one of five major trade categories, irrespective of its cooperative or non-cooperative nature.[2] It was believed that this classification scheme would provide more insights into the specific types of work study and vocational education programs that generate more favorable impacts on the labor market experiences of students. One might well anticipate that the performance of the various vocational programs would differ quite widely by trade area and that certain of these programs would not yield any positive, statistically significant impact on the labor market experiences of students. The third method of classifying these programs was similar to that of method two, except that each of the vocational trade categories (exclusive of the miscellaneous category) was further broken down into a cooperative and regular vocational category. This last method thus introduces eleven different program variables into the analysis of the students' labor market experiences. Two of these program variables represent work study types of programs, four represent various types of cooperative vocational programs, and the remaining five represent various types of regular vocational trade courses. The general academic programs again serve as the base group for this analysis.

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[1] The base group's effect on the dependent variables will appear in the constant term of the equation. The coefficients for each of the program variables entered into the multiple regression model will thus represent the contribution of participation in that program to the dependent variable (e.g., weeks of employment during the junior and senior years of high school) over and above that of an equivalent student in the general academic program.

[2] These five trade categories included auto, carpentry and woodworking-related, electrical and electronics, machine and metal fabrication-related, and miscellaneous trades.

The remainder of this appendix will focus upon a discussion of the major hypotheses that will be tested with the assistance of the multiple regression techniques. These hypotheses essentially involve a set of views based upon theory and _a priori_ reasoning as to the expected signs of the coefficients for the various intervening and high school program variables entered into each of the regression models as explanatory variables.

(1) _Kagegrad_. The variable Kagegrad represents the age (in years) of the student at the time of his graduation from high school. Age was included as an explanatory variable in each regression model of the labor market experiences of the students. Age was expected to be positively related to labor force participation, weeks of employment, and hourly wages of students and to be negatively related to the proportion of time in the labor force during which they would be unemployed.

Surveys of the labor force participation rates of young males have consistently revealed higher participation rates to be associated with increasing age on both a local and national basis.[1] The tendency of labor force participation rates of males enrolled in high school to increase with age is generally attributed to such factors as the increased commitment of older male students to the labor force, the desires of the older male students for increased personal consumption that the family budget cannot as readily meet, and the increased acceptability of the older students to employers. Thus, age is likely picking up both supply-side factors (an increased willingness of students to supply their labor) and demand-side factors (increased willingness of employers to extend employment offers to this group).

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[1] The labor force participation rate of male students 18 years of age surprisingly falls below that of 17 year old male students. This erratic effect of age on the labor force participation rates of male students in the 18+ age categories was also found in the Bowen-Finnegan analysis of the 1960 National Census data. See: (i) U.S. Department of Commerce, Bureau of the Census, _Detailed Characteristics: Massachusetts_, PC(1)-D23, "Table 166," pp. 743-751; (ii) Bowen, William G. and Finegan, T. Aldrich, _The Economics of Labor Force Participation_, Princeton University Press, Princeton, 1969, pp. 382-384.

Older high school students are also expected to experience lower rates of unemployment than their younger counterparts. Again, national and local data on unemployment rates of young males have generally revealed a strong tendency for unemployment rates to decline with age. These lower unemployment rates of older male students are typically attributed to their greater degree of labor force experience, their greater knowledge of the local labor market, and their increased acceptability to employers.

Finally age was also expected to positively influence the average hourly wages of students, both during and after high school. On the one hand, age should be correlated with previous employment experience and thus represent a form of human capital investment with an expected economic payoff. On the other hand, with increasing age, young males should become more acceptable to those employers offering "adult" jobs whose wages exceed those prevailing in the "youth" labor market.[1] Since age was hypothesized to positively influence both the employment and wages of young males, the primary determinants of earned income, age should also positively affect the gross earned incomes of students during both the high school years and the post-high school, follow-up period.

(2) Brace, Sprace: Each student was classified into one of the following three racial-ethnic groups: white non-Spanish, Spanish, or black. The variables Brace and Sprace are dichotomous variables representing either a black student (Brace) or a student who is a member of a Spanish-speaking ethnic group, primarily Puerto Ricans (Sprace). Black and Spanish-speaking students were hypothesized to experience lower rates of labor force participation, fewer weeks of employment, higher rates of unemployment, and lower hourly wages than their white counterparts, who were part of the base group in the analysis.

Substantially lower labor force participation rates have typically been observed for young, black male students in comparison to whites in recent years.

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[1] See: Barton, Paul E., "Youth Transition to Work: The Problem and Federal Policy Setting," From School to Work: Improving the Transition, U.S. Government Printing Office, Washington, D.C., 1976, p.3.

In the area during 1970, the gaps in labor force participation rates between all male students and black male students in the 15, 16, and 17 year old age categories were 5.4%, 13.1%, and 12.9%, respectively.[1] Other studies of the labor force participation of young persons have found blacks to be characterized by significantly lower participation rates even after controlling for other variables.[2] Among the factors believed responsible for these large gaps between the participation rates of young white and black males are the more frequent absence of adult males in black households (thus reducing the availability of information on jobs to young persons in these families), the lower number of retail jobs located within black neighborhoods, the greater distances between black neighborhoods and expanding job centers, and racial discrimination in the hiring process.[3]

Both black and Spanish-speaking students were also expected to encounter higher rates of unemployment and to earn lower hourly wages while employed. These higher rates of unemployment would be partly attributable to their fewer weeks of labor force experience, the greater distances between their homes and expanding job centers, and to racial discrimination in the labor market. Other labor market analysts have also placed major blame for the high rates of unemployment among black youth upon the federal minimum wage and its impact upon restricting employment opportunities for such youth.

(3) Fathgrad, Mothgrad, Mothwrks. During the initial in-school interview with students, information was obtained on a number of family socio-economic status variables, including the educational attainment and occupational status of the father and mother. No attempt was made to collect family income data since it was felt that the students would not be able to provide accurate estimates of their family's overall income position.

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[1] On the other hand, the findings of the 1970 census revealed that Spanish-speaking students in the 15, 16, and 17 year old age groups were more likely to be participating in the labor force than their white counterparts. See: U.S. Department of Commerce, Bureau of the Census, Detailed Characteristics: Massachusetts, PC(1)-D23, "Table 166," pp. 743-751.

[2] See: (i) Bowen, William G. and Finegan, T. Aldrich, op.cit., pp. 401-406; (ii) Cohen, Malcolm S.; Lerman, Robert I.; and Rea, Samuel A.; op.cit., pp. A-12, A-13.

[3] These types of explanations for the lower participation rates of minority youth have been presented in the following publications: (i) Offner, Paul, "Labor Force Participation in the Ghetto," Journal of Human Resources, Fall 1972, pp. 460-481; (ii) The Twentieth Century Fund Task Force on Employment Problems of Black Youth, The Job Crisis for Black Youth, pp. 37-41, 49-51; (iii) Bowen, William G. and Finegan, T. Aldrich, op.cit., pp. 401-404.

The educational attainment of the students' fathers has been entered into practically all of the multiple regression models as an explanatory variable. Interpretation of the coefficients for Fathgrad are not, however, relatively straightforward since educational attainment is also partly picking up the effects of other family income and the labor force status of the head of household.

Given that the educational attainment of adult males is correlated with their annual earnings and thus should be correlated with other family income of students, the next issue is that of developing a hypothesis or set of hypotheses with respect to the expected impact of other family income upon the labor market experiences of the students during their high school and post-high school years. The findings of previous studies with respect to the impact of other family income upon the labor force experiences of students and young non-students are mixed. For example, the Bowen-Finnegan analysis of the labor force participation behavior of 14-17 year old male students revealed that after initially falling below the participation rate of students in the lowest family income category ($0-$999) the participation rates of students began to rise together with family income until the highest income groups were reached ($15,000 and over).[1] Thus, 14-17 year old students in middle and upper middle income families were more likely to be in the labor force than those in many of the low to low middle income groups.[2]

On the other hand, the Bowen-Finegan analysis of the labor force participation behavior of 18-24 year old males living in families revealed that other family income did not significantly influence their labor force behavior no matter whether they were enrolled or not enrolled in school.[3] The Cohen-Lerman-Rea analysis of the labor force participation behavior of 16-21 year old students (both male and female) also did not provide any evidence of a significant impact of family income upon the participation decision.[4]

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[1] Bowen, William G. and Finegan, T. Aldrich, op.cit., particularly pages 386-391, 719.

[2] These findings held true even after controlling for other variables such as age, color, family size, educational attainment of family head, and labor force status of family head.

[3] Family income does, however, exert a substantial impact upon the school attendance decisions of 17-21 year old high school graduates. See: Lerman, Robert L., "Some Determinants of Youth School Activity," Journal of Human Resources, Summer 1972, pp. 366-379.

[4] Robert Lerman has argued that family income appears to play a more substantial role in influencing the degree of participation (hours worked per week) of students rather than their decision to participate or not. See: Lerman, Robert L., op.cit.

Other studies of the labor force participation behavior of young males, including those of Bowen and Finegan and Cohen, Lerman, and Rea, have found that the labor force status of the family head did influence the likelihood of a young male participating in the labor force. In general, young males living in families whose head was not in the labor force were less likely to be actively participating in the labor force.[1]

On the basis of both _a priori_ reasoning and the findings of previous research, we have hypothesized that students whose fathers had completed twelve or more years of schooling would, _ceteris paribus_, be characterized by more favorable labor force experiences, particularly with respect to the proportion of time they spent in the labor force, the weeks of employment obtained, and the average hourly wages they earned while employed.

The higher educational attainment of the above group of fathers should be associated with a higher degree of attachment to the labor force, greater knowledge of local labor markets, and a wider variety of contacts in the labor market. This stock of labor market knowledge possessed by the students' fathers can be instrumental in improving the labor market information of the students themselves and enhance the effectiveness of their job search efforts in the local labor market. A recent study on occupational information of youth by Parnes and Kohen provides support for this hypothesis.[2]

Two variables (Mothgrad and Mothwrks) were constructed on the basis of the responses of students to the questions on the educational attainment and typical occupational status of their mothers. One of these two variables was utilized as an explanatory variable in practically all of the regression models. It should be noted, however, that only one of these two variables would be entered into any given regression model. In no equation do these two variables appear simultaneously.[3]

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[1] See: Bowen, William G. and Finegan, T. Aldrich, _op.cit._, pp. 719, 729, and 753.

[2] Parnes, Herbert S. and Kohen, Andrew I., "Occupational Information and Labor Market Status: The Case of Young Men," _Journal of Human Resources_, Winter 1975, pp. 44-55.

[3] Several attempts were made during the course of the analysis to test whether or not the simultaneous inclusion of these two variables would improve the explanatory power of the model. In no case did the simultaneous presence of these two variables increase significantly the explanatory power of the model.

The variable Mothgrad is a dichotomous, or dummy, variable which is assigned the value of one if the student's mother completed twelve or more years of schooling or the value of zero if the student's mother did not graduate from high school. National data for 1970 reveal that the participation rates of married women (35 years of age and over, with husband present, and no children under six years of age) did vary by the number of years of school that they had completed. Women who completed twelve years of school were more likely to participate in the labor force than those with only 9-11 years of school (46.4% vs. 40.1%). It should be noted that these differences are also gross differences, unadjusted for other factors influencing labor force participation such as the income of the husband. Adjusted differences between labor force participation rates of married women in various educational groups have been shown to be higher than these unadjusted differences.[1]

Given the relationship between educational attainment of married women and the likelihood of their participating in the labor force, one might well hypothesize that Mothgrad would positively influence a number of the labor market experiences of students, including those related to the proportion of time spent in the labor force and the number of weeks of employment obtained by students, particularly during the high school years. Students whose mothers participate in the labor force would have access to an additional source of labor market information that could play a key role in improving the effectiveness of the job search of students as well as serving as a "credential" upon which the student could possibly rely in his application for employment.

Rather than relying upon Mothgrad to serve as a proxy for the labor force attachment of a student's mother, it was decided to enter Mothwrks directly into most of the regression models related to the labor market experiences of students, particularly those during the high school years. The variable Mothwrks is also a dichotomous, or dummy, variable which takes on the value of one if the student claimed during the high school interview that his mother was regularly attached to an occupation or the value of zero if the student's mother was either not regularly attached to the labor force (i.e., primarily in the status of a housewife), retired, or deceased. It was hypothesized that the coefficient for Mothwrks would be positive in those regression models related to the labor force participation and employment of the students.

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[1] See: Bowen, William G. and Finegan, T. Aldrich, op.cit., pp. 114-127.

Given the fact that teenaged males (16-19) obtain the bulk of their employment opportunities in the retail trade and private services sectors of the economy, the presence of an employed mother can increase the flow of labor market information on available job openings to young male students. Adult women within the area were concentrated within the same types of industries that provide the bulk of employment opportunities for young males, particularly those in the 16-17 year old age category.

Employment opportunities for young males in the area during 1970 were heavily concentrated in two industrial sectors - retail trade and services.[1] Given this concentration in those industrial sectors that employ relatively large proportions of adult women, one might well hypothesize that the labor force participation rates and weeks of employment of male students would be positively influenced by the employment of their mother. Since these women tend to be employed in similar industries as male teens, they can serve as an additional source of information on available job opportunities for students. It can also be anticipated that such effects (if they exist) would be greater in the high school years than in the post-high school years, given the greater tendency for young males to enter the adult male-dominated industries (construction, durable manufacturing) upon graduation from high school.

(4) Absfath. During the in-school interview, students were requested to provide information on the presence or absence of the father in the home. Some students were reluctant to discuss this; thus, the number of absent fathers may actually have been larger than the number recorded. The variable Absfath was constructed to represent the responses of the students to this question. This variable is also a dichotomous variable that is assigned the value of one if the student's father was either deceased or otherwise not present in the student's home at the time of the interview, or the value of zero if the student's father was physically present in the home.

Developing a hypothesis with respect to the expected sign of the coefficient for Absfath is a rather complex task. On the one hand, it could well be argued that the absence of the male head, the traditional primary breadwinner of the family, would lower family income to a rather substantial degree and place pressure upon teenaged sons and daughters to enter the labor force in order to supplement family income. The Bowen-Finegan analysis of the labor force participation behavior of young males (14-17) enrolled in school revealed that students living in one-parent families (either father or mother) were significantly more likely to participate in the labor force.[1] At the same time, it could be argued that the absence of the father would deprive the student of both a worker role model and a source of labor market information that would adversely affect his experiences in the labor market both during and after high school. Finding the latter types of arguments quite persuasive, it was hypothesized that the absence of the father would typically have an adverse effect upon the labor market experiences of students.

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[1] The services sector as defined in the above Table consists of four individual employment sectors. Those four sectors consist of business and repair services, personal services, entertainment and recreation services, and professional and related services.

(5) Indsub, Centcit: Two variables (Indsub and Centcit) were constructed to represent the location of the high schools which the students attended during their junior and senior years. These high school location variables are also essentially the same as the locations of the student's households during the junior and senior years of high school. Both of these variables are dichotomous, or dummy, variables. The variable Centcit is a dummy variable which takes on the value of one if the student's high school was located in the central city of the metropolitan area or the value of zero if the high school was located outside of the central city. The variable Indsub is also a dummy variable, which was assigned the value of one if the student's high school was located in one of two large cities bordering on the central city itself or the value of zero if the high school was located elsewhere in the metropolitan area. Students whose high schools were located in other less populous suburban communities were included in the base group.

The locations of the students' high schools were included in the multiple regression models primarily to represent labor market conditions in the students' communities during both the high school years and the immediate post-high school, follow-up period. The findings from the initial, in-school interviews with the students revealed that the bulk of their high school employment experiences occurred within firms located in the community in which they lived or in a neighboring city or town.

For the period 1969-71, data on changes in covered employment in the SMSA as a whole showed a decline of 4.0 percent. Covered employment fell even more sharply in each of the three geographic areas represented by the high school location variables, with the "other suburbs" area experiencing an 8.3 percent decline. Declines of 5.3 percent and 7.3 percent occurred within the central city and the "large, inner suburbs" respectively. On the basis of the below average decline in covered employment within the central city, one might well hypothesize that students attending high schools within the central city would, *ceteris paribus*, be characterized by more favorable labor market experiences during their junior and senior years of high school.[1]

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[1] See: Bowen, William G. and Finegan, T. Aldrich, op.cit., p. 397.

During the 1972-73 period total covered employment in the SMSA rose by 1.8%. In the "other suburbs," covered employment increased sharply by 6.2% while it fell by 1.9% in the central city and by 1.0% in the "large, inner suburbs." On the basis of these substantially different employment developments during the post-high school, follow-up period, one would hypothesize that, holding other factors constant, students who had attended high schools in the "other suburbs" would have more favorable employment experiences in the follow-up period than those attending high schools in the central city or the two large inner suburbs. At the same time, one might anticipate the effects of these differential employment developments to be somewhat diminished by the greater geographic mobility of the students upon their graduation from high school.

(6) *Cproghs*, *Vproghs*, *Wproghs*: In order to analyze the impact of participation in alternative high school programs upon the labor market experiences of students, a series of high school program variables were constructed and entered into the regression models as explanatory variables. The first set of such program variables consisted of the four major types of high school programs, i.e., cooperative vocational, regular vocational, work study, and general academic. Each of these variables is a dichotomous, or dummy, variable. For example, Cproghs is a dummy variable that was assigned the value of one if the student was enrolled in a cooperative vocational program or the value of zero if he was enrolled in another type of high school program. Students in the general academic programs were part of the base group for the multivariate

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[1] See: Commonwealth of Massachusetts, Division of Employment Security, (i) *Employment and Wages in Massachusetts and the Standard Metropolitan Statistical Areas, 1958-1970*, Boston, 1972; (ii) *Employment and Wages in Massachusetts and the Standard Metropolitan Statistical Areas, 1970-1974*, Boston, 1975; (iii) *Massachusetts Cities and Towns Employment and Wages in Establishments Subject to the Massachusetts Employment Security Law, by Major Industry Division, 1967-1975*, Boston, 1977.

statistical analysis.

Students in the cooperative vocational programs were expected to be characterized by more favorable labor force, employment, and earnings experiences both during the junior and senior years of high school and during the post-high school follow-up period. One would hypothesize positive coefficients for both Cproghs and Wproghs in the regression models of such high school labor market outcomes as labor force participation, employment, hourly wages, and gross earnings. These positive impacts of cooperative and work study high school programs would be anticipated for the following reasons: (a) Students in cooperative high school programs receive specialized placement assistance from school officials. These placement services should enable coop students to find jobs more quickly and to obtain somewhat higher wage positions; (b) The cooperative vocational programs and work study programs are structured in a manner that allows their participants to compete more effectively for existing jobs by providing them with the flexibility to work during the mornings, early afternoons, or full-time during the week. This flexibility should have enabled them to participate more fully in the labor force, to obtain more weeks of employment during the high school years, and to obtain access to a wider variety of jobs in the local labor market. (c) In several of the cooperative vocational high school programs, and in practically all work study programs, employment was a requirement for participation in the program. The compulsory employment aspects of such programs should have favorably influenced the labor force participation behavior and employment experiences of students in the cooperative and work study programs. If these participants, however, simply acquired traditional "youth" jobs, they would not necessarily have achieved higher hourly wages. Several of the hourly wage regression models did include types of employment experiences as explanatory variables to determine whether or not hourly earnings were influenced by the nature of the jobs held by students during their high school years. (d) To the extent that students voluntarily selected their high school programs on the basis of the ability of such programs to provide them opportunities to obtain employment, students in cooperative vocational and work study programs may well be characterized by significantly different "tastes for work" than their non-cooperative counterparts. Thus, enrollment in cooperative and work study programs should be accompanied by higher degrees of labor force participation by students in such programs. (e) To the extent that students who participate in cooperative and in work study high school programs do succeed in obtaining more weeks of employment and more weeks of on-the-job training while employed during the high school years, they should be characterized by more favorable labor market experiences during the post-high school, follow-up period. These advantages should include more weeks of employment, fewer weeks of unemployment, and higher hourly wages than their non-cooperative counterparts. Thus, one should expect the coefficients for Cproghs and Wproghs to be positive and statistically significant in the regression models of post-high school labor force participation, employment, and hourly wages.[1]

(7) Bstwstd, Othwstd: Each of the work study programs was classified into one of two categories. The first category (Bstwstd) consisted of only one work study program, which was located in the central city and which was characterized by intensive job placement and supervision of student work sites. The other category (Othwstd) contained all other work study programs. Both of these variables are dichotomous, or dummy, variables. For example, the variable Bstwstd was assigned the value of one if the student was enrolled in the central city work study program offering intensive job placement and support services or the value of zero if the students was enrolled in any other type of program, including other types of work study programs.

(8) Auto, Carp, Elect, Metal, Miscrft: Each of the vocational education programs, whether cooperative or non-cooperative, was classified into one of the following five trade categories: auto-related, carpentry-related, electrical-related, metal-related, and miscellaneous. Each of these trade categories is a dichotomous, or dummy, variable. For example, the variable Auto is a dummy variable which was assigned the value of one if the student was enrolled in an auto-related vocational program or the value of zero if the student was enrolled in any other type of high school program, including other types of vocational courses.

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[1] If one controls for differences in employment and hourly earnings during the high school years, the coefficients for Oproghs and Wproghs in the post-high school regression models may well turn out to be insignificant. The cooperative programs should primarily be expected to influence the post-high school labor market experiences of students by providing them with superior employment and on-the-job training opportunities during the high school years. Once these in-school labor market experience variables have been controlled for, it becomes rather difficult to develop a rationale for the hypothesis that the cooperative high school program variables would contribute independently to any of the post-high school labor market experiences of students.

These vocational trade variables were constructed and entered into the multiple regression models as explanatory variables to determine whether or not participation in different types of vocational trade programs yielded significantly different impacts on the labor market experiences of those enrolled in such programs. Differences in employment conditions within the industries that dominate the hiring of persons in occupations for which the programs provide skill training would be expected to significantly influence the labor market experiences of students during both the high school years and the post-high school, follow-up period. Table 10-1 provides information on employment changes in selected key industries within the area during both the 1970-72 and 1972-73 periods. These industries would be expected to provide a major portion of the overall employment opportunities for graduates from the vocational trade programs surveyed.

During the 1970-72 period, covered employment increased in contract construction and auto-related industries by 3.0% and 3.7%, respectively. Between 1972-73, however, covered employment in these two industries either fell (-1.2% for contract construction) or remained unchanged. As a result, students in the carpentry-related and auto-related trades should have faced a relatively favorable labor market during the junior and senior years of high school. A slack labor market, however, would have been encountered by this group during the post-high school follow-up period.

Between 1970-72, covered employment in the fabricated metal, non-electrical machinery, and the electrical machinery and equipment industries experienced sharp declines. These substantial decreases in employment should have adversely affected the labor market experiences of students in the metal-related and electrical-related trades during their junior and senior years of high school. Between 1972-73, however, these industries experienced quite dramatic increases in employment, with covered employment in the fabricated metal and non-electrical machinery industries rising by 13.5%. Thus, students in the metal and electrical-related trades should have been characterized by more favorable employment experiences in the post-high school, follow-up period than their counterparts in the other trade areas.

In summary, the trends in covered employment by industry during the 1970-73 period would lead one to anticipate some differences in the labor market experiences of students in the various vocational trade programs. During the junior and senior years of high school, industrial employment developments should have favorably influenced the labor market experiences of students in the auto and carpentry-related trades while adversely affecting employment opportunities for students in the metal and electrical-related trades. On the other hand, the changes in industry employment occurring during the post-high school, follow-up period should have favorably affected the labor market experiences of students graduating from the metal and electrical-related trade programs.

Students in the auto, carpentry, electrical, and metal-related trades were further classified by the cooperative or non-cooperative nature of their high school programs. Each of the above four trade program variables was thus broken down into two classifications. For example, the variable Auto was classified into Rauto and Autoco. These additional variables are also dummy variables that were assigned values of either zero or one. The variable Rauto was assigned the value of one if the student had been enrolled in a regular vocational, auto-related program while the variable Autoco took on the value of one if the student had been enrolled in a cooperative, auto-related trade program. Students in the cooperative trade programs were expected, *ceteris paribus*, to be characterized by significantly better labor market experiences than their counterparts in similar regular vocational trade programs.

Table [illegible]A-1: Trends in Covered Employment in Various Industries Within the SMSA, 1970-72 and 1972-73

Industry	(A) Absolute Change in Employment (1970-72)	(B) Percentage Change in Employment (1970-72)	(C) Absolute Change in Employment (1972-73)	(D) Percentage Change in Employment (1972-73)
Contract Construction	+ 1700	+ 3.0%	- 700	- 1.2%
Fabricated Metal and Machinery, except Electrical	- 4000	- 7.9%	+6300	+13.5%
Electrical Machinery, Equipment, and Supplies	- 4500	- 9.3%	+3100	± 7.1%
Automotive Dealers and Gasoline Service Stations	+ 700	+ 3.7%	0	0.0%

Source: Commonwealth of Massachusetts, Division of Employment Security Employment and Wages in Massachusetts and the Standard Metropolitan Statistical Areas, 1970-74, Boston, October 1975.

Note: Each of the industries appearing in the above table were defined in the following manner:

(i) Contract Construction - SIC 15-17

(ii) Fabricated Metal and Machinery, except Electrical - SIC 34-35

(iii) Electrical Machinery, Equipment, and Supplies - SIC 36

(iv) Automotive Dealers and Gasoline Service Stations - SIC 55

List of Independent Variables Appearing in One or More of the In-School Labor Market Outcome Regressions, 10-1 through 10-8

KAGEGRAD
BRACE
SPRACE
FATHGRAD
ABSFATH
MOTHWORKS
CENTCIT
INDSUB
CPROGHS
VPROGHS
WPROGHS
BESTWSTD
OTHWSTD
AUTO
AUTOCO
RAUTO
CARP
CARPCO
RCARP
ELECT
ELECTCO
RELECT
METAL
METACO
RMETAL
MISCRFT
LABPART
KTWKSEMP
COOPEMP
REGEMP
WORKEMP
GENEMP
CWKSEMP
NWKSEMP
NTWKSEMP
UNEMPRTE
KTWAGE
KJWAGE
KSWAGE

Table 10-1: Results of the Multiple Regression Analysis of the Determinants of the Proportion of Time Spent in the Labor Force by Students during the Junior and Senior Years of High School (N=367)

Dependent Variable	Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
LABPART	1) KAGEGRAD	.042*** (2.50)	.041*** (2.45)	.035** (2.12)	.029** (1.74)	.032** (1.90)	.031** (1.83)	.025* (1.57)	.023* (1.39)	(1
	2) BRACE	-.154*** (2.93)	-.150*** (2.87)	-.165*** (3.07)	-.165*** (3.10)	-.163*** (3.13)	-.167*** (3.10)	-.172*** (3.21)	-.161*** (3.07)	(2
	3) SPRACE	-.282** (2.34)	-.248** (2.06)	-.275** (2.29)	-.278** (2.33)	-.273** (2.32)	-.277** (2.31)	-.286*** (2.40)	-.251** (2.15)	(3
	4) FATHGRAD	.033 (1.03)	.036 (1.13)	.042* (1.32)	.044* (1.40)	.041* (1.32)	.043* (1.34)	.035 (1.11)	.025 (.80)	(4
	5) SES									(5
	6) ABSFATH	-.045 (1.02)	-.041 (.94)	-.044 (1.01)	-.055* (1.29)	-.049 (1.15)	-.048 (1.10)	-.048 (1.11)	-.044 (1.04)	(6
	7) MOTHGRAD									(7
	8) MOTHWRKS		.075*** (2.46)	.060** (1.97)	.051** (1.69)	.049* (1.63)	.046* (1.50)	.037 (1.22)	.034 (1.12)	(8
	9) CENTCIT	.013 (.39)	.024 (.71)	.062** (1.65)	.024 (.58)	.020 (.55)	.028 (.66)	.026 (.63)	.031 (.76)	(9
	10) INDSUB	-.014 (.25)	-.018 (.33)	.038 (.65)	.016 (.28)	.029 (.47)	.030 (.48)	.032 (.52)	.054 (.88)	(10
	11) CPROGHS			-.015 (.36)	-.006 (.14)					(11
	12) VPROGHS			.004 (.86)	-.002 (.04)					(12
	13) WPROGHS			.132*** (2.94)						(13
	14) BSTWSTD				.296*** (4.02)	.293*** (3.98)	.293*** (3.96)	.286*** (3.91)	.258*** (3.59)	(14
	15) OTHWSTD				.072* (1.41)	.070* (1.41)	.075* (1.46)	.076* (1.50)	.079* (1.59)	(15
	16) AUTO					.018 (.32)				(16
	17) AUTOCO						.005 (.07)	.023 (.30)	.001 (.01)	(17
	18) RAUTO						.032 (.42)	.040 (.53)	.011 (.15)	(18
	19) CARP					-.083 (1.46)				(19
	20) CARPCO						-.045 (.58)	-.048 (.64)	-.029 (.39)	(20
	21) RCARP						-.114 (1.58)	-.109 (1.53)	-.104 (1.50)	(21
	22) ELECT					.009 (.16)				(22
	23) ELECTCO						-.012 (.18)	.008 (.12)	.010 (.15)	(23
	24) RELECT						.034 (.46)	.038 (.53)	.040 (.57)	(24
	25) METAL					.013 (.30)				(25
	26) METACO						-.001 (.01)	.007 (.14)	-.008 (.17)	(26
	27) RMETAL						.040 (.60)	.043 (.66)	.055 (.86)	(27
	28) MISCRFT					-.036 (.34)	-.032 (.30)	-.023 (.22)	.043 (.42)	(28
	29) KTWAGE							.0008*** (2.64)	.0007** (2.32)	(29
	30) UNEMPRTE								-.407*** (4.18)	(30
	31) CONSTANT	-.038 (.12)	-.058 (.19)	-.004 (.01)	.139 (.46)	.091 (.30)	.106 (.34)	.013 (.04)	.144 (.48)	(31
	R^2	.054	.070	.101	.121	.130	.133	.150	.191	
	F	2.932***	3.357***	3.636***	4.059***	3.487***	2.795***	3.048***	3.869***	
	D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,346)	(21,345)	

NOTES: (1) t-statistics are in parentheses.

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-2: Results of the Multiple Regression Analysis of the Determinants of Total Weeks of Employment Obtained by Students during the Junior and Senior Years of High School Combined (N=367)

Dependent Variable	Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
KTWKSEMP	1) KAGEGRAD	5.08*** (2.75)	4.95*** (2.70)	4.44*** (2.42)	3.68** (2.01)	3.89** (2.12)	3.83** (2.07)	3.28** (1.78)	(1
	2) BRACE	-15.85*** (2.73)	-15.43*** (2.68)	-16.58*** (2.80)	-16.53*** (2.82)	-16.22*** (2.85)	-16.24*** (2.74)	-16.82*** (2.87)	(2
	3) SPRACE	-30.51** (2.31)	-26.90** (2.03)	-29.27** (2.21)	-29.54** (2.26)	-29.97** (2.32)	-29.89** (2.27)	-31.00*** (2.39)	(3
	4) FATHGRAD	5.27* (1.50)	5.60* (1.60)	6.10** (1.74)	6.35** (1.84)	6.09** (1.77)	5.94** (1.69)	5.01* (1.44)	(4
	5) SES								(5
	6) ABSFATH	-3.83 (.79)	-3.42 (.71)	-3.74 (.79)	-5.15 (1.10)	-4.24 (.90)	-4.13 (.87)	-4.14 (.88)	(6
	7) MOTHGRAD								(7
	8) MOTHWRKS		7.86*** (2.35)	6.38** (1.91)	5.33* (1.61)	4.95* (1.49)	4.61* (1.38)	3.51 (1.06)	(8
	9) CENTCIT	1.83 (.50)	2.93 (.80)	6.44* (1.55)	1.62 (.36)	1.44 (.36)	1.35 (.29)	1.12 (.25)	(9
	10) INDSUB	-5.44 (.90)	-5.90 (.98)	-.21 (.03)	-2.86 (.45)	-1.21 (.18)	-1.55 (.22)	-1.31 (.19)	(10
	11) CPROGHS			-1.06 (.23)	-.01 (.01)				(11
	12) VPROGHS			-.40 (.08)	-1.21 (.24)				(12
	13) WPROGHS			13.24*** (2.67)					(13
	14) BSTWSTD				33.07*** (4.09)	32.83*** (4.07)	32.93*** (4.06)	32.16*** (4.01)	(14
	15) OTHWSTD				5.59 (1.00)	5.64 (1.02)	5.66 (1.01)	5.80 (1.05)	(15
	16) AUTO					4.94 (.79)			(16
	17) AUTOCO						2.90 (.35)	5.14 (.62)	(17
	18) RAUTO						7.12 (.86)	8.14 (.99)	(18
	19) CARP					-9.22 (1.48)			(19
	20) CARPCO						-5.82 (.69)	-6.27 (.76)	(20
	21) RCARP						-11.97 (1.53)	-11.36 (1.46)	(21
	22) ELECT					.02 (.03)			(22
	23) ELECTCO						-1.28 (.17)	1.32 (.18)	(23
	24) RELECT						1.77 (.22)	2.35 (.30)	(24
	25) METAL					1.50 (.31)			(25
	26) METACO						1.87 (.33)	2.82 (.51)	(26
	27) RMETAL						.77 (.11)	1.20 (.17)	(27
	28) MISCRFT					-12.36 (1.09)	-12.36 (1.08)	-11.24 (.99)	(28
	29) KTWAGE							.102*** (3.02)	(29
	30) UNEMPRTE								(30
	31) CONSTANT	-23.46 (.69)	-25.61 (.76)	-20.67 (.62)	-3.44 (.10)	-6.82 (.20)	-5.58 (.17)	-17.18 (.51)	(31
	32) R^2	.057	.072	.098	.122	.135	.137	.159	(32
	33) F	3.115***	3.450***	3.510***	4.088***	3.650***	2.888***	3.265***	(33
	34) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,346)	(34

NOTES: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-3: Results of the Multiple Regression Analysis of the Determinants of Weeks of Employment Obtained by Students during the Junior Year of High School (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)[a]	
KJWKSEMP	1) KAGEGRAD	4.16*** (3.65)	4.10*** (3.61)	3.91*** (3.40)	3.39*** (2.97)	3.54*** (3.08)	3.48*** (3.02)	2.74*** (2.65)	(1
	2) BRACE	-7.85** (2.19)	-7.68** (2.15)	-8.87*** (2.39)	-8.81*** (2.41)	-8.62*** (2.42)	-9.04*** (2.44)	-10.26*** (3.07)	(2
	3) SPRACE	-11.96* (1.47)	-10.45* (1.29)	-12.03* (1.45)	-12.23* (1.50)	-11.86* (1.47)	-12.15* (1.48)	-17.16*** (2.50)	(3
	4) FATHGRAD	2.34 (1.08)	2.48 (1.14)	2.74 (1.25)	2.90* (1.35)	2.69 (1.25)	3.05* (1.39)	3.83** (1.96)	(4
	5) SES								(5
	6) ABSFATH	-5.07** (1.70)	-4.90** (1.65)	-5.14** (1.73)	-6.08** (2.07)	-5.60** (1.89)	-5.51** (1.85)	-4.69** (1.76)	(6
	7) MOTHGRAD								(7
	8) MOTHWRKS		3.31* (1.59)	2.63 (1.25)	1.91 (.92)	1.74 (.84)	1.74 (.83)	.46 (.24)	(8
	9) CENTCIT	2.51 (1.11)	2.97* (1.31)	4.99** (1.92)	1.70 (.61)	1.30 (.52)	2.15 (.75)	3.44* (1.30)	(9
	10) INDSUB	-1.22 (.33)	-1.41 (.38)	1.44 (.36)	-.37 (.09)	.21 (.05)	.74 (.17)	1.04 (.27)	(10
	11) CPROGHS			-2.94 (1.02)	-2.04 (.72)				(11
	12) VPROGHS			-.97 (.30)	-1.34 (.43)				(12
	13) WPROGHS			4.00* (1.29)					(13
	14) BSTWSTD				17.92*** (3.56)	17.79*** (3.53)	17.71*** (3.50)	12.98*** (3.03)	(14
	15) OTHWSTD				-.91 (.26)	-1.05 (.31)	-.64 (.18)	.11 (.03)	(15
	16) AUTO					1.44 (.37)			(16
	17) AUTOCO						2.91 (.56)	1.98 (.43)	(17
	18) RAUTO						.07 (.01)	2.24 (.47)	(18
	19) CARP					-6.77* (1.74)			(19
	20) CARPCO						-5.59 (1.07)	-3.08 (.63)	(20
	21) RCARP						-7.74 (1.57)	-7.40** (1.65)	(21
	22) ELECT					-.52 (.14)			(22
	23) ELECTCO						-1.44 (.31)	-6.54 (1.63)	(23
	24) RELECT						.29 (.06)	-1.23 (.28)	(24
	25) METAL					-1.72 (.58)			(25
	26) METACO						-3.82 (1.10)	-5.95* (1.91)	(26
	27) RMETAL						2.47 (.54)	.08 (.02)	(27
	28) MISCRFT					-2.37 (.33)	-1.97 (.28)	-6.51 (1.09)	(28
	29) KJWAGE							.029* (1.48)	(29
	30) UNEMPRTE								(30
	31) CONSTANT	-44.12** (2.11)	-45.02** (2.16)	-42.31** (2.02)	-30.66 (1.47)	-32.94 (1.57)	-32.68 (1.55)	-20.18 (1.06)	(31
	32) R^2	.061	.068	.080	.109	.118	.124	.162	(32
	33) F	3.336***	3.249***	2.807***	3.627***	3.145***	2.576***	2.875***	(33
	34) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,298)	(34

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

[a] The seventh equation has included as an explanatory variable, KJWAGE, the average hourly wage earned by students during the junior year of high school. This equation has only 319 observations rather than the 367 observations characterizing equations 1-6. The reduced number of observations is primarily due to the fact that no wage variable existed for those students who were not employed during the junior year of high school.

Table 10-4: Results of the Multiple Regression Analysis of the Determinants of Total Weeks of Employment during the Senior Year of High School (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)ᵃ	
KSWKSEMP	1) KAGEGRAD	.65 (.63)	.57 (.56)	.26 (.25)	-.01 (.01)	.04 (.04)	.04 (.04)	.65 (.65)	(1
	2) BRACE	-7.41** (2.30)	-7.15** (2.24)	-7.00** (2.14)	-7.01** (2.14)	-6.90** (2.17)	-6.47** (1.97)	-4.12* (1.28)	(2
	3) SPRACE	-18.25*** (2.49)	-16.07** (2.19)	-16.77** (2.29)	-16.84** (2.41)	-17.68*** (2.46)	-17.26** (2.37)	-11.54* (1.40)	(3
	4) FATHGRAD	2.69* (1.38)	2.89* (1.49)	3.14* (1.62)	3.22** (1.67)	3.18** (1.67)	2.68* (1.38)	1.93 (1.03)	(4
	5) SES								(5
	6) ABSFATH	.68 (.25)	.93 (.35)	.90 (.34)	.38 (.14)	.82 (.31)	.83 (.32)	-.01 (.01)	(6
	7) MOTHGRAD								(7
	8) MOTHWRKS		4.74*** (2.56)	4.02** (2.17)	3.65** (1.97)	3.42** (1.85)	3.11** (1.67)	2.45* (1.37)	(8
	9) CMNTCIT	-.21 (.11)	.45 (.22)	1.80 (.78)	.09 (.04)	.32 (.14)	-.66 (.26)	-2.11 (.87)	(9
	10) INDSUB	-3.70 (1.10)	-3.98 (1.19)	-1.52 (.43)	-2.47 (.69)	-1.37 (.36)	-2.23 (.58)	-3.94 (1.07)	(10
	11) CPROGHS			2.33 (.92)	2.52 (1.00)				(11
	12) VPROGHS			1.03 (.37)	.56 (.20)				(12
	13) WPROGHS			9.02*** (3.29)					(13
	14) BSTWSTD				15.63*** (3.47)	15.52*** (3.46)	15.70*** (3.50)	13.02*** (3.06)	(14
	15) OTHWSTD				6.00** (1.93)	6.19** (2.02)	5.78** (1.86)	3.68* (1.32)	(15
	16) AUTO					4.14 (1.20)			(16
	17) AUTOCO						.84 (.18)	-.59 (.13)	(17
	18) RAUTO						7.62** (1.65)	6.50* (1.46)	(18
	19) CARP					-1.94 (.56)			(19
	20) CARPCO						.30 (.06)	.75 (.17)	(20
	21) RCARP						-3.74 (.86)	-4.08 (.94)	(21
	22) ELECT					.92 (.28)			(22
	23) ELECTCO						.63 (.15)	-.16 (.04)	(23
	24) RELECT						1.75 (.40)	-.43 (.10)	(24
	25) METAL					3.64* (1.36)			(25
	26) METACO						6.08** (1.97)	4.61* (1.58)	(26
	27) RMETAL						-1.26 (.31)	.27 (.06)	(27
	28) MISCRFT					-9.58 (1.52)	-10.00 (1.58)	-10.74* (1.70)	(28
	29) KSWAGE							.01 (.78)	(29
	30) UNEMPRTE								(30
	31) CONSTANT	25.19* (1.34)	23.89* (1.29)	25.95* (1.41)	32.11** (1.72)	31.18** (1.67)	32.09** (1.72)	22.24 (1.23)	(31
	32) R^2	.042	.060	.092	.100	.115	.127	.100	(32
	33) F	2.274**	2.838***	3.273***	3.263***	3.048***	2.659***	1.847**	(33
	34) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,331)	(34

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

a. The seventh equation has included as an explanatory variable, KSWAGE, the average hourly wage earned by students during the senior year of high school. This equation only has 352 observations rather than the 367 observations characterizing equations 1-6. The reduced number of observations is due to the fact that no wage variable exists for those students who did not hold any jobs during the senior year of high school.

340

Table 10-5: Results of the Multiple Regression Analysis of the Determinants of Total Weeks of Unemployment Encountered by Students during the Junior and Senior Years Combined (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
KTWKSUN	1) KAGEGRAD	-.712 (1.25)	-.710 (1.24)	-.776* (1.33)	-.678 (1.16)	-.581 (1.00)	-.636 (1.09)	-.629 (1.07)	-.246 (.44)	(1
	2) BRACE	-.209 (.12)	-.213 (.12)	-.590 (.31)	-.619 (.33)	-.695 (.38)	-1.18 (.63)	-1.21 (.64)	-2.82 (1.57)	(2
	3) SPRACE	1.19 (.29)	1.15 (.28)	.647 (.15)	.647 (.15)	1.53 (.37)	1.09 (.26)	1.03 (.24)	-1.94 (.48)	(3
	4) FATHGRAD	-1.85** (1.69)	-1.85** (1.69)	-1.73* (1.57)	-1.75* (1.58)	-1.79* (1.64)	-1.49* (1.34)	-1.48* (1.33)	-.886 (.84)	(4
	5) SES									(5
	6) ABSFATH	-.815 (.55)	-.820 (.55)	-.804 (.53)	-.599 (.40)	-.906 (.60)	-.83 (.55)	-.846 (.56)	-1.25 (.88)	(6
	7) MOTHGRAD									(7
	8) MOTHWRKS		-.086 (.08)	-.149 (.14)	-.015 (.15)	.183 (.17)	.158 (.15)	.169 (.16)	.63 (.62)	(8
	9) CENTCIT	-.472 (.42)	-.484 (.43)	.038 (.03)	.832 (.59)	.673 (.53)	1.54 (1.06)	1.55 (1.06)	1.68 (1.22)	(9
	10) INDSUB	4.02** (2.14)	4.02** (2.14)	4.13** (2.04)	4.57** (2.23)	4.24** (1.96)	4.70** (2.16)	4.71** (2.16)	4.55** (2.20)	(10
	11) CPROGHS			-.479 (.33)	-.601 (.41)					(11
	12) VPROGHS			.811 (.50)	1.01 (.63)					(12
	13) WPROGHS			.504 (.32)						(13
	14) BSTWSTD				-2.30 (.89)	-2.40 (.93)	-2.49 (.97)	-2.43 (.92)	.852 (.34)	(14
	15) OTHWSTD				1.85 (1.04)	1.68 (.96)	2.10 (1.18)	2.12 (1.19)	2.67 (1.59)	(15
	16) AUTO					-3.06* (1.55)				(16
	17) AUTOCO						-2.35 (.89)	-2.35 (.89)	-2.06 (.82)	(17
	18) RAUTO						-3.80* (1.45)	-3.80* (1.44)	-3.08 (1.23)	(18
	19) CARP					.606 (.31)				(19
	20) CARPCO						1.18 (.45)	1.17 (.44)	.590 (.23)	(20
	21) RCARP						.152 (.06)	.125 (.05)	-1.06 (.45)	(21
	22) ELECT					.891 (.47)				(22
	23) ELECTCO						-.010 (.01)	-.013 (.01)	-.140 (.06)	(23
	24) RELECT						1.72 (.68)	1.73 (.68)	1.90 (.79)	(24
	25) METAL					-.127 (.08)				(25
	26) METACO						-1.90 (1.08)	-1.90 (1.08)	-1.70 (1.02)	(26
	27) RMETAL						3.39 (1.47)	3.40 (1.47)	3.47 (1.59)	(27
	28) MISCRFT					8.66** (2.40)	9.07** (2.51)	9.06** (2.50)	7.81** (2.28)	(28
	29) LABPART							-.23 (.12)		(29
	30) KTWKSEMP								-.102*** (6.32)	(30
	31) CONSTANT	19.51** (1.86)	19.53** (1.86)	20.28** (1.92)	17.88** (1.67)	16.26* (1.53)	16.58* (1.55)	16.61* (1.55)	16.02* (1.58)	(31
	32) R^2	.025	.026	.028	.033	.058	.071	.071	.167	(32
	33) F	1.35	1.18	.915	1.02	1.43	1.39	1.32	3.47***	(33
	34) D.F.	(7,359)	(8,359)	(11,355)	(12,354)	(15,351)	(19,347)	(20,346)	(20,346)	(34

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-6: Results of the Multiple Regression Analysis of the Determinants of the Proportion of Total Weeks in the Labor Force during which the Students were Unemployed, (Junior and Senior Years Combined) (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
UNEMPRTE	1) EAGEGRAD	-.013* (1.44)	-.012* (1.41)	-.012* (1.32)	-.010 (1.11)	-.010 (1.10)	-.015 (1.16)	-.007 (.76)	(1
	2) BRACE	.037* (1.33)	.036* (1.29)	.035 (1.21)	.035 (1.21)	.028 (1.01)	.025 (.88)	.005 (.17)	(2
	3) SPRACE	.086* (1.34)	.077 (1.20)	.078 (1.20)	.078 (1.20)	.087* (1.37)	.083* (1.30)	.049 (.78)	(3
	4) FATHGRAD	-.031** (1.80)	-.031** (1.85)	-.032** (1.84)	-.032** (1.87)	-.031** (1.84)	-.028** (1.67)	-.023* (1.39)	(4
	5) SES								(5
	6) ABSFATH	.013 (.56)	.012 (.52)	.012 (.53)	.016 (.69)	.010 (.42)	.010 (.42)	.004 (.17)	(6
	7) MOTHGRAD								(7
	8) MOTHWRKS		-.018 (1.14)	-.017 (1.02)	-.014 (.86)	-.011 (.66)	-.011 (.66)	-.005 (.32)	(8
	9) CENTCIT	-.008 (.49)	-.011 (.63)	-.014 (.67)	-.0002 (.01)	.004 (.21)	.012 (.53)	.015 (.70)	(9
	10) INDSUB	.055** (1.88)	.056** (1.91)	.049 * (1.57)	.057 ** (1.80)	.047 * (1.42)	.053 * (1.59)	.057 ** (1.74)	(10
	11) CPROGHS			-.005 (.21)	-.007 (.30)				(11
	12) VPROGHS			.0004 (.02)	.004 (.15)				(12
	13) WPROGHS			-.020 (.82)					(13
	14) BSTWSTD				-.070** (1.75)	-.071** (1.81)	-.072** (1.83)	-.037 (.93)	(14
	15) OTHWSTD				.003 (.11)	.004 (.12)	.007 (.26)	.016 (.61)	(15
	16) AUTO					-.059** (1.93)			(16
	17) AUTOCO						-.050 (1.23)	-.049 (1.25)	(17
	18) RAUTO						-.068** (1.67)	-.064* (1.62)	(18
	19) CARP					.029 (.94)			(19
	20) CARPCO						.046 (1.12)	.040 (1.01)	(20
	21) RCARP						.014 (.35)	-.0003 (.01)	(21
	22) ELECT					.010 (.36)			(22
	23) ELECTCO						.011 (.30)	.009 (.26)	(23
	24) RELECT						.007 (.17)	.011 (.28)	(24
	25) METAL					-.014 (.60)			(25
	26) METACO						-.036* (1.32)	-.036* (1.36)	(26
	27) RMETAL						.030 (.84)	.035 (1.00)	(27
	28) MISCRFT					.161*** (2.91)	.164*** (2.95)	.161*** (2.95)	(28
	29) LABPART							-.122*** (4.37)	(29
	30) CONSTANT	.333** (2.04)	.388** (2.07)	.334** (2.03)	.2[illegible]** ([illegible].75)	.283** (1.73)	.289** (1.75)	.302** (1.88)	(30
	31) R^2	.035	.038	.041	.048	.090	.099	.146	(31
	32) F	1.87*	1.80*	1.38	1.49	2.31***	2.01***	2.96***	(32
	33) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,346)	(33

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-7: Results of the Multiple Regression Analysis of the Determinants of the Average Hourly Wage Earned by Students during the Junior and Senior Years of High School (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
KTWAGE	1) KAGEGRAD	6.26** (2.21)	6.06** (2.16)	5.93** (2.09)	5.70** (1.99)	5.67** (1.97)	5.39** (1.86)	4.43* (1.53)	3.88* (1.38)	3.87* (1.39)
	2) BRACE	8.96 (1.00)	9.65 (1.09)	5.82 (.64)	5.87 (.64)	7.78 (.87)	5.66 (.61)	9.75 (1.05)	8.65 (.96)	9.40 (1.05)
	3) SPRACE	8.66 (.43)	14.63 (.72)	10.83 (.53)	10.77 (.53)	12.42 (.61)	10.89 (.53)	18.40 (.96)	14.48 (.71)	18.29 (.91)
	4) FATHGRAD	7.67* (1.42)	8.20* (1.53)	8.57* (1.59)	8.63* (1.59)	8.52* (1.58)	9.03* (1.64)	7.54* (1.38)	6.26 (1.18)	6.07 (1.16)
	5) SES									
	6) ABSFATH	1.01 (.13)	1.69 (.23)	.84 (.11)	.41 (.55)	-.55 (.07)	.12 (.02)	1.15 (.16)	1.44 (.20)	1.58 (.22)
	7) MOTHGRAD									
	8) MOTHWRKS		12.99*** (2.54)	11.69** (2.26)	11.38** (2.19)	11.79*** (2.56)	10.75** (2.04)	9.59** (1.84)	11.89** (2.34)	11.14** (2.21)
	9) CENTCIT	-3.00 (.54)	-1.18 (.21)	3.23 (.50)	1.64 (.24)	-.26 (.04)	2.13 (.30)	1.84 (.26)	2.09 (.33)	3.74 (.59)
	10) INDSUB	-7.82 (.84)	-8.58 (.93)	-2.04 (.20)	-2.91 (.29)	-1.96 (.18)	-2.32 (.21)	-1.93 (.18)	-2.72 (.28)	-3.64 (.37)
	11) CPROGHS			-12.88* (1.81)	-12.52* (1.77)				-13.69 (.91)	-14.31 (1.06)
	12) VPROGHS			-6.26 (.80)	-6.53 (.83)				3.75 (.24)	-4.84 (.63)
	13) WPROGHS			.75 (.09)					-29.38 (1.44)	-4.08 (.54)
	14) BSTWSTD				7.03 (.56)	7.49 (.59)	7.49 (.59)	-.79 (.06)		
	15) OTHWSTD				-1.74 (.20)	-2.70 (.31)	-1.38 (.16)	-2.80 (.32)		
	16) AUTO					-16.07* (1.65)				
	17) AUTOCO						-21.84* (1.67)	-22.56* (1.74)		
	18) RAUTO						-9.91 (.76)	-11.70 (.91)		
	19) CARP					-1.66 (.17)				
	20) CARPCO						4.40 (.33)	5.86 (.45)		
	21) RCARP						-6.01 (.49)	-3.00 (.24)		
	22) ELECT					-16.55* (1.76)				
	23) ELECTCO						-25.39** (2.19)	-25.07** (2.19)		
	24) RELECT						-5.74 (.46)	-6.19 (.50)		
	25) METAL					-7.56 (1.00)				
	26) METACO						-9.35 (1.07)	-9.82 (1.14)		
	27) RMETAL						-4.18 (.37)	-4.37 (.39)		
	28) MISCRFT					-12.33 (.69)	-10.91 (.61)	-7.80 (.44)		
	29) KTWKSEMP							.25*** (3.03)		
	30) COOPEMP								.237* (1.61)	
	31) CWKSEMP									.118 (.70)
	32) HWKSEMP									.443** (2.39)
	33) REGEMP								.075 (.47)	
	34) NTWKSEMP									.232*** (2.48)
	35) WORKEMP								.536*** (2.54)	
	36) GENEMP								.220* (1.64)	
	37) CONSTANT	100.79** (1.94)	97.24** (1.89)	102.73** (1.99)	108.02** (2.06)	109.63** (2.08)	113.38** (2.14)	114.78** (2.19)	126.2*** (2.42)	124.86*** (2.47)
	38) R^2	.022	.039	.050	.052	.057	.064	.089	.080	.081
	39) F	1.143	1.820*	1.711*	1.598*	1.418	1.257	1.679**	2.031**	2.190***
	40) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)	(20,346)	(15,351)	(14.352)

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-8: Results of the Multiple Regression Analysis of the Determinants of Gross Earnings of Students during the Junior and Senior Years of High School Combined (N=367)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
HSINCOM	1) KAGEGRAD	690.29*** (4.78)	678.66*** (4.74)	635.66*** (4.42)	607.37*** (4.19)	624.94*** (4.29)	615.12*** (4.20)
	2) BRACE	-605.08* (1.33)	-565.95 (1.26)	-705.74* (1.52)	-707.26* (1.53)	-586.44* (1.29)	-659.19* (1.40)
	3) SPRACE	-1309.82 (1.26)	-971.05 (.94)	-1209.57 (1.17)	-1221.77 (1.18)	-1172.70 (1.14)	-1213.88 (1.16)
	4) FATHGRAD	367.68* (1.33)	398.11* (1.45)	449.12* (1.64)	460.51** (1.68)	422.61* (1.55)	437.85* (1.58)
	5) SES						
	6) ABSFATH	-328.56 (.87)	-290.38 (.78)	-312.16 (.84)	-363.82 (.97)	-335.59 (.89)	-307.38 (.81)
	7) MOTHGRAD						
	8) MOTHWRKS		737.89*** (2.82)	626.90*** (2.39)	587.30** (2.23)	572.10** (2.17)	529.11** (1.98)
	9) CENTCIT	103.12 (.36)	206.36 (.72)	525.25* (1.61)	360.63 (1.03)	223.31 (.70)	296.33 (.81)
	10) INDSUB	-498.32 (1.05)	-541.37 (1.15)	-127.99 (.25)	-218.13 (.43)	-198.23 (.37)	-228.65 (.42)
	11) CPROGHS			-177.20 (.49)	-145.12 (.40)		
	12) VPROGHS			64.00 (.16)	34.47 (.09)		
	13) WPROGHS			951.21*** (2.45)			
	14) BSTWSTD				1651.61*** (2.58)	1658.77*** (2.59)	1662.75*** (2.59)
	15) OTHWSTD				683.38* (1.55)	625.76* (1.44)	667.44* (1.50)
	16) AUTO					162.54 (.33)	
	17) AUTOCO						-65.61 (.10)
	18) RAUTO						409.53 (.62)
	19) CARP					-369.65 (.75)	
	20) CARPCO						-110.07 (.16)
	21) RCARP						-556.91 (.89)
	22) ELECT					-19.97 (.04)	
	23) ELECTCO						-382.41 (.65)
	24) RELECT						430.79 (.68)
	25) METAL					55.73 (.15)	
	26) METACO						29.57 (.07)
	27) RMETAL						103.03 (.18)
	28) MISCRFT					-1303.09 (1.45)	-1256.35 (1.38)
	29) KTWKSEMP						
	30) CONSTANT	-8554.09*** (3.23)	-8755.98*** (3.33)	-8308.17*** (3.18)	-7673.78*** (2.90)	-7894.45*** (2.97)	-7751.28*** (2.89)
	31) R^2	.071	.091	.113	.118	.125	.129
	32) F	3.90***	4.47***	4.13***	3.95***	3.36***	2.72***
	33) D.F.	(7,359)	(8,358)	(11,355)	(12,354)	(15,351)	(19,347)

NOTES: (1) t-statistics are in parentheses
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

List of Independent Variables Appearing in One or More of the Out-of-School Labor Market and Educational Outcome Regressions, 10-9 through 10-17

KAGEGRAD
BRACE
SPRACE
FATHGRAD
ABSFATH
MOTHWORKS
CENTCIT
INDSUB
MILIT
PHSED
CPROGHS
VPROGHS
WPROGHS
BESTWSTD
OTHWSTD
AUTO
AUTOCO
RAUTO
CARP
CARPCO
RCARP
ELECT
ELECTCO
RELECT
METAL
METACO
RMETAL
MISCRFT
LABPART
PLABPART
KTWKSEMP
KPWKSEMP
TWKSEMP
COOPEMP
REGEMP
WORKEMP
GENEMP
UNEMPRTE
KTWAGE
KPWAGE
LSTWAGE
PROFMN
CLERSL
CRAFTS
OPERT
TRANSP
LSTHRS
RELASTD

Table 10-9: Results of the Multiple Regression Analysis of the Determinants of the Proportion of Time in the Post-High School Period during which the Students Participated in the Civilian Labor Force (N=281)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PLABPART	KAGEGRAD	.012 (.71)	.103 (1.15)	.007 (.80)	.006 (.71)	.006 (.63)	.003 (.32)	.003 (.32)
	BRACE	.036 (.65)	.057** (1.95)	.054* (1.79)	.065** (2.21)	.066** (2.16)	.081*** (2.65)	.081** (2.64)
	SPRACE	-.162 (1.27)	-.209*** (3.10)	-.224*** (3.24)	-.224*** (3.34)	-.219*** (3.19)	-.189*** (2.76)	-.189*** (2.76)
	FATHGRAD	-.011 (.34)	.016 (.95)	.018 (1.08)	.019 (1.15)	.023* (1.36)	.023* (1.38)	.023* (1.36)
	ABSFATH	-.022 (.50)	.003 (.12)	.004 (.15)	-.011 (.45)	-.011 (.48)	-.011 (.46)	-.011 (.45)
	MOTHWRKS		.027** (1.67)	.025* (1.55)	.022* (1.37)	.026* (1.61)	.024* (1.52)	.024* (1.52)
	CENTCIT	-.021 (.64)	.011 (.62)	.021 (1.03)	-.004 (.22)	.001 (.02)	-.001 (.01)	-.001 (.01)
	INDSUB	-.054 (1.02)	-.009 (.34)	-.008 (.27)	-.031 (.98)	-.024 (.75)	-.026 (.82)	-.026 (.81)
	PHSED		-.686*** (16.92)	-.670*** (16.06)	-.664*** (16.04)	-.665*** (16.00)	-.641*** (15.35)	-.641*** (15.27)
	MILIT		-.688*** (21.37)	-.694*** (21.42)	-.692*** (21.72)	-.688*** (21.23)	-.686*** (21.52)	-.686*** (21.47)
	CRPOGHS			.021 (.92)				
	VPROGHS			.033* (1.29)				
	WPROGHS			.047** (1.87)				
	BSTWSTD				.127*** (3.29)	.126*** (3.27)	.109*** (2.85)	.109*** (2.84)
	OTHWSTD				.002 (.07)	.004 (.13)	.001 (.01)	.001 (.01)
	AUTO				-.016 (.51)			
	AUTOCO					.018 (.45)	.021 (.52)	.021 (.52)
	RAUTO					-.052 (1.25)	-.051 (1.26)	-.051 (1.26)
	CARP				.028 (.90)			
	CARPCO					.030 (.72)	.041 (.98)	.041 (.98)
	RCARP					.026 (.66)	.038 (.95)	.038 (.95)
	ELECT				.047* (1.63)			
	ELECTCO					.048* (1.43)	.055* (1.64)	.055* (1.64)
	RELECT					.040 (1.02)	.051* (1.30)	.051* (1.30)
	METAL				.035* (1.51)			
	METACO					.020 (.78)	.029 (1.12)	.029 (1.12)
	RMETAL					.067** (1.89)	.074** (2.11)	.074** (2.11)
	MISCRFT				-.018 (.33)	-.017 (.29)	-.011 (.21)	-.012 (.21)
	LABPART						.084*** (3.02)	.084*** (2.99)
	KPWAGE							.0001 (.88)
	CONSTANT	.682** (2.20)	.730*** (4.46)	.754*** (4.58)	.790*** (4.72)	.794*** (4.80)	.780*** (4.78)	.780*** (4.76)
	R^2	.013	.729	.733	.745	.748	.756	.757
	F	.526	72.643***	56.293***	45.113***	36.631***	36.475***	34.754***
	D.F.	(7,273)	(10,270)	(13,267)	(17,263)	(21,259)	(22,258)	(23,257)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-9A: Results of the Multiple Regression Analysis of the Determinants of the Proportion of Time in the Post-High School Follow-Up Period during which Students Participated in the Civilian Labor Force (N=297)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
FLABPART	KAGEGRAD	.030*	.013*	.011	.009	.009	.006
		(1.43)	(1.47)	(1.14)	(.98)	(.94)	(.69)
	BRACE	.050	.054*	.051*	.059**	.059**	.081***
		(.75)	(1.86)	(1.68)	(2.03)	(1.95)	(2.70)
	SPRACE	-.107	-.208***	-.226***	-.222***	-.219***	-.177***
		(.65)	(2.96)	(3.14)	(3.20)	(3.07)	(2.50)
	FATHGRAD	.008	.024*	.027*	.027 *	.031**	.029**
		(.20)	(1.39)	(1.57)	(1.59)	(1.78)	(1.72)
	ABSFATH	-.008	.011	.012	-.003	-.002	-.001
		(.14)	(.46)	(.51)	(.12)	(.09)	(.02)
	MOTHWRKS	.049*	.032**	.031**	.028**	.031**	.028**
		(1.32)	(1.99)	(1.88)	(1.76)	(1.89)	(1.78)
	CENTCIT	.029	.026	.037*	.007	.011	.007
		(.71)	(1.46)	(1.78)	(.34)	(.49)	(.31)
	INDSUB	-.036	.005	.003	-.019	-.014	-.023
		(.54)	(.18)	(.09)	(.60)	(.43)	(.72)
	PHSED		-.721***	-.704***	-.700***	-.701***	-.661***
			(18.55)	(17.42)	(17.53)	(17.46)	(16.28)
	MILIT		-.806***	-.812***	-.806***	-.805***	-.801***
			(31.87)	(31.81)	(32.19)	(31.63)	(32.18)
	CPROGHS			.020			
				(.86)			
	VPROGHS			.039*			
				(1.48)			
	WPROGHS			.042 **			
				(1.65)			
	BSTWSTD				.130***	.129***	.105***
					(3.34)	(3.31)	(2.73)
	OTHWSTD				-.010	-.008	-.012
					(.36)	(.29)	(.44)
	AUTO				-.012		
					(.38)		
	AUTOCO					.015	.019
						(.36)	(.47)
	RAUTO					-.043	-.042
						(1.01)	(1.01)
	CARP				.018		
					(.58)		
	CARPCO					.009	.031
						(.22)	(.75)
	RCARP					.027	.038
						(.65)	(.96)
	ELECT				.048*		
					(1.64)		
	ELECTCO					.045	.056*
						(1.26)	(1.63)
	RELECT					.050	.060*
						(1.27)	(1.55)
	METAL				.040 **		
					(1.66)		
	METACO					.030	.037*
						(1.10)	(1.40)
	RMETAL					.061**	.064**
						(1.70)	(1.81)
	MISCRFT				-.018	-.016	-.008
					(.34)	(.30)	(.14)
	LABPART						.110***
							(3.76)
	CONSTANT	.233	.656***	.676***	.728***	.727***	.687***
		(.61)	(3.95)	(4.05)	(4.37)	(4.33)	(4.19)
	R^2	.021	.821	.823	.832	.833	.841
	F	.77	131.44***	101.47***	81.21***	65.38***	66.03***
	D.F.	(8,288)	(10,286)	(13,283)	(17,279)	(21,275)	(22,274)

Notes:

(1) t-statistics are in parentheses

(2) *** significant at the .01 level

** significant at the .05 level

* significant at the .10 level

347

Table 10-10: Results of the Multiple Regression Analysis of the Total Number of Weeks in the Post-High School Follow-Up Period during which the Student was Employed (N=281)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
KPWKSEMP	KAGEGRAD	.480 (.33)	.401 (.38)	.369 (.35)	.041 (.04)	.034 (.03)	.508 (.47)	.313 (.29)	-.238 (.27)	-.332 (.31)
	BRACE	1.21 (.25)	2.93 (.84)	2.98 (.86)	1.95 (.54)	1.95 (.54)	4.39 (1.25)	3.37 (.92)	6.08* (1.73)	6.11* (1.73)
	SPRACE	-10.03 (.91)	-14.24** (1.81)	-13.99** (1.76)	-16.32** (2.01)	-16.30** (2.00)	-13.80** (1.73)	-15.64** (1.91)	-9.60 (1.22)	-9.58 (1.21)
	FATHGRAD	.241 (.09)	1.73 (.88)	1.66 (.84)	2.03 (1.02)	2.04 (1.02)	1.91 (.96)	2.11 (1.03)	1.94 (1.00)	1.79 (.91)
	ABSFATH	-5.85* (1.52)	-3.88* (1.40)	-3.83* (1.38)	-3.80* (1.37)	-3.86* (1.[illegible]7)	-4.03* (1.43)	-4.17* (1.48)	-4.07* (1.51)	-4.07* (1.51)
	MOTHWRKS			.486 (.26)	.309 (.16)	.[illegible]91 (.1[illegible])	.375 (.20)	.343 (.18)	-.039 (.02)	-.060 (.03)
	CENTCIT	-6.35** (2.21)	-4.60** (2.22)	-4.62** (2.22)	-2.96 (1.24)	-3.[illegible]7 (1.[illegible]9)	-4.98** (2.14)	-3.29 (1.21)	-3.32* (1.28)	-3.40* (1.31)
	INDSUB	-6.16* (1.34)	-2.93 (.89)	-2.90 (.88)	-2.43 (.69)	-2.[illegible]9 (.[illegible]0)	-3.41 (.90)	-2.68 (.69)	-2.66 (.72)	-2.82 (.76)
	MILIT		-49.70*** (12.85)	-50.49*** (13.37)	-51.16*** (13.43)	-50.[illegible]7*** (13.3[illegible])	-50.94*** (13.44)	-50.65*** (13.12)	-50.07*** (13.61)	-50.04*** (13.58)
	PHSED		-49.45*** (10.44)	-49.53*** (10.42)	-48.89*** (9.96)	-48.9[illegible]*** (9.95)	-47.62*** (9.66)	-47.28*** (9.55)	-42.85*** (8.94)	-42.65*** (8.85)
	CPROGHS				-.277 (.10)	-.41[illegible] (.16)				
	VPROGHS				3.08 (1.01)	2.89 (.95)				
	WPROGHS				3.30 (1.10)					
	BSTWSTD					3.31 (.72)	3.43 (.75)	3.31 (.72)	-.180 (.04)	-.071 (.02)
	OTHWSTD					2.85 (.82)	1.95 (.57)	2.82 (.81)	2.51 (.76)	2.31 (.69)
	AUTO						-2.87 (.78)			
	AUTOCO							-4.71 (.97)	-4.26 (.92)	-4.27 (.92)
	RAUTO							-1.00 (.20)	-1.48) (.32)	-1.41 (.30)
	CARP						.588 (.16)			
	CARPCO							1.82 (.36)	4.48 (.93)	4.53 (.94)
	RCARP							-.068 (.01)	2.22 (.48)	2.06 (.45)
	ELECT						2.69 (.78)			
	ELECTCO							2.38 (.59)	3.92 (1.01)	4.02 (1.03)
	RELECT							2.97 (.63)	4.54 (1.01)	4.57 (1.02)
	METAL						3.76 (1.14)			
	METACO							.756 (.24)	2.22 (.74)	2.27 (.76)
	RMETAL							7.79** (1.85)	9.29** (2.31)	9.17** (2.27)
	MISCRFT						-11.41* (1.69)	-11.41* (1.69)	-9.78 (1.52)	-9.72 (1.51)
	KTWKSEMP								.153*** (5.23)	.152*** (5.12)
	KPWAGE									.006 (.48)
	CONSTANT	59.39** (2.21)	63.32*** (3.30)	63.70*** (3.32)	67.38*** (3.48)	67.74*** (3.44)	60.22*** (3.07)	62.55*** (3.17)	61.65*** (3.28)	60.96*** (3.23)
	R^2	.034	.510	.522	.526	.525	.536	.541	.585	.585
	F	1.37	31.21***	29.45***	22.77***	21.04***	17.89***	14.55***	16.54***	15.76***
	D.F.	(7,273)	(9,270)	(10,270)	(13,267)	(14,266)	(17,263)	(21,259)	(22,258)	(23,257)

Notes: (1) t-statistics are in parentheses.

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-10A: Results of the Multiple Regression Analysis of the Total Number of Weeks of Employment Obtained by Students during the Post-High School Follow-Up Period

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KPWKSEMP	KAGEGRAD	1.97	.736	.499	.416	.761	.619	.115	.126
		(1.13)	(.70)	(.47)	(.38)	(.71)	(.57)	(.11)	(.12)
	BRACE	2.70	2.97	2.10	2.15	4.09	3.17	6.54*	7.47**
		(.48)	(.99)	(.61)	(.62)	(1.21)	(.90)	(1.93)	(2.19)
	SPRACE	-6.60	-14.05**	-16.27**	-16.44**	-14.06**	-15.91**	-8.72	-9.14
		(.49)	(1.74)	(1.97)	(1.98)	(1.73)	(1.91)	(1.09)	(1.15)
	FATHGRAD	1.17	2.32	2.66*	2.66*	2.37	2.51	1.98	2.35
		(.36)	(1.19)	(1.35)	(1.35)	(1.21)	(1.25)	(1.04)	(1.23)
	SES								
	ABSFATH	-4.17	-2.80	-2.72	-3.06	-3.33	-3.45	-3.27	-2.86
		(.91)	(1.02)	(.99)	(1.10)	(1.20)	(1.23)	(1.23)	(1.08)
	MOTHWRKS	1.89	.616	.539	.462	.592	.463	-.001	.289
		(.61)	(.33)	(.29)	(.24)	(.31)	(.24)	(.01)	(.16)
	CENTCIT	-3.12	-3.38*	-2.04	-2.79	-4.38**	-2.91	-3.51*	-1.74
		(.91)	(1.64)	(.86)	(1.10)	(1.91)	(1.10)	(1.39)	(.65)
	NRSUB	-4.94	-1.97	-2.16	-2.62	-3.06	-2.46	-3.46	-3.29
		(.90)	(.60)	(.61)	(.73)	(.81)	(.64)	(.95)	(.91)
	MILI		-59.19***	-59.45***	-59.27***	-58.98***	-58.87***	-57.85***	-58.20***
			(20.35)	(20.22)	(20.19)	(20.17)	(19.79)	(20.51)	(20.67)
	PHSED		-53.27***	-52.62***	-52.78***	-51.80***	-51.48***	-45.48***	-45.66***
			(11.92)	(11.30)	(11.32)	(11.11)	(10.98)	(9.97)	(10.05)
	CPROGHS			-.221	-.336				
				(.08)	(.12)				
	VPROGHS			3.22	2.79				
				(1.06)	(.92)				
	WPROGHS			-1.77					
				(.60)					
	BSTWSTD				3.74	3.80	3.69	-.542	1.12
					(.82)	(.84)	(.81)	(.12)	(.25)
	OTHWSTD				-.015	-.650	.030	-.274	-.366
					(.01)	(.20)	(.01)	(.09)	(.11)
	AUTO					-2.61			
						(.71)			
	AUTOCO						-4.55	-4.08	-3.58
							(.95)	(.90)	(.79)
	RAUTO						-.629	-1.14	-.636
							(.13)	(.24)	(.13)
	CARP					.068			
						(.02)			
	CARPCO						.579	4.69	4.36
							(.12)	(1.02)	(.95)
	RCARP						-.275	1.60	1.56
							(.06)	(.35)	(.35)
	ELECT					2.49			
						(.72)			
	ELECTCO						2.03	4.19	4.87
							(.49)	(1.06)	(1.24)
	RELECT						2.93	4.51	4.96
							(.63)	(1.03)	(1.13)
	METAL					3.33			
						(1.19)			
	METACO						1.43	2.38	2.54
							(.45)	(.79)	(.85)
	RMETAL						7.35**	8.14**	8.37**
							(1.74)	(2.04)	(2.10)
	MISCRFT					-10.70*	-10.07*	-7.64	-7.30
						(1.71)	(1.59)	(1.27)	(1.22)
	KTWKSEMP							.172***	.171***
								(5.75)	(5.72)
	KPWKSAVL								.417***
									(1.78)
	CONSTANT	24.66	55.63***	58.09***	60.41***	55.03***	56.67***	53.17***	18.71
		(.77)	(2.92)	(3.02)	(3.09)	(2.82)	(2.89)	(2.87)	(.70)
	R^2	.016	.653	.654	.655	.662	.664	.701	.704
	F	.60	53.77***	41.29***	38.28***	32.21***	25.98***	29.19***	28.28***
	D.F.	(8,288)	(10,286)	(13,283)	(14,282)	(17,279)	(21,275)	(22,274)	(23,273)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

319

Table 10-11: Results of the Multiple Regression Analysis of the Proportion of Weeks in the Post-High School Follow-Up Period during which the Student was Employed (N=281)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EMPAVL	KAGEGRAD	.008 (.45)	.008 (.43)	.007 (.54)	.003 (.20)	.001 (.09)	.007 (.51)	.005 (.33)	-.003 (.22)
	BRACE	.051 (.83)	.051 (.82)	.070 (1.58)	.056 (1.22)	.057 (1.24)	.089** (1.98)	.078** (1.66)	.113** (2.50)
	SPRACE	-.154 (1.09)	-.149 (1.05)	-.203** (1.99)	-.237** (2.27)	-.240** (2.30)	-.208** (2.03)	-.230** (2.19)	-.152* (1.50)
	FATHGRAD	.007 (.19)	.007 (.21)	.031 (1.21)	.038* (1.47)	.038* (1.48)	.034* (1.34)	.037* (1.40)	.034* (1.39)
	ABSFATH	-.057 (1.15)	-.057 (1.15)	-.034 (.95)	-.034 (.96)	-.038 (1.07)	-.041 (1.13)	-.043 (1.19)	-.042 (1.20)
	MOTHWRKS		.011 (.33)	.014 (.60)	.010 (.41)	.008 (.34)	.011 (.45)	.011 (.46)	.006 (.27)
	CENTCIT	-.034 (.91)	-.032 (.88)	-.006 (.21)	.019 (.62)	.011 (.33)	-.017 (.58)	.003 (.09)	.003 (.08)
	INDSUB	-.072 (1.21)	-.072 (1.21)	-.031 (.73)	-.024 (.54)	-.029 (.64)	-.046 (.94)	-.036 (.72)	-.035 (.75)
	MILIT			-.626*** (12.89)	-.621*** (12.44)	-.619*** (12.41)	-.633*** (13.03)	-.627*** (12.68)	-.620*** (13.15)
	PHSED			-.631*** (10.34)	-.618*** (9.82)	-.618*** (9.81)	-.601*** (9.51)	-.597*** (9.41)	-.540*** (8.79)
	CPROGHS				.003 (.10)	.004 (.12)			
	VPROGHS				.047 (1.22)	.045 (1.15)			
	WPROGHS				.058* (1.50)				
	BSTWSTD					.087* (1.48)	.090* (1.53)	.088* (1.50)	.043 (.76)
	OTHWSTD					.041 (.92)	.021 (.47)	.031 (.69)	.027 (.64)
	AUTO						-.026 (.55)		
	AUTOCO							-.047 (.75)	-.041 (.69)
	RAUTO							-.005 (.09)	-.012 (.19)
	CARP						.012 (.24)		
	CARPCO							.023 (.36)	.057 (.93)
	RCARP							.006 (.11)	.036 (.61)
	ELECT						.050 (1.13)		
	ELECTCO							.052 (1.00)	.071* (1.45)
	RELECT							.043 (.72)	.064 (1.11)
	METAL						.045 (1.27)		
	METACO							.017 (.43)	.036 (.95)
	RMETAL							.106** (1.96)	.125*** (2.43)
	MISCRFT						-.146* (1.70)	-.133 (1.54)	-.112 (1.36)
	KTWKSEMP								.002*** (5.27)
	KPWAGE								
	CONSTANT	.679** (1.97)	.680** (1.97)	.721*** (2.92)	.769*** (3.09)	.799*** (3.17)	.714*** (2.84)	.74*** (2.93)	.730*** (3.03)
	R^2	.018	.019	.501	.496	.496	.519	.524	.570
	F	.738	.658	27.17***	20.12***	18.66***	16.70***	13.57***	15.56***
	D.F.	(7,273)	(8,272)	(10,270)	(13,267)	(14,266)	(17,263)	(21,259)	(22,258)

Notes: (1) t-statistics are in parentheses.

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-11A: Results of the Multiple Regression Analysis of the Proportion of Weeks in the Post-High School Follow-Up Period during which the Student was Employed (N=297)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EMPAVL	KAGEGRAD	.027 (1.23)	.012 (.88)	.008 (.60)	.006 (.40)	.010 (.72)	.008 (.60)	.002 (.14)
	BRACE	.063 (.89)	.067 (1.56)	.056 (1.25)	.057 (1.28)	.080* (1.85)	.070 (1.55)	.113** (2.60)
	SPRACE	-.110 (.64)	-.203** (1.95)	-.234** (2.19)	-.240** (2.26)	-.210** (2.01)	-.233** (2.18)	-.142* (1.38)
	FATHGRAD	.024 (.58)	.039* (1.54)	.044** (1.72)	.044** (1.74)	.040* (1.59)	.042* (1.62)	.035* (1.43)
	ABSFATH	-.040 (.69)	-.023 (.64)	-.021 (.60)	-.030 (.84)	-.033 (.94)	-.035 (.98)	-.033 (.97)
	MOTHGRAD							
	MOTHWRKS	.033 (.83)	.017 (.71)	.016 (.64)	.013 (.54)	.014 (.60)	.014 (.55)	.008 (.33)
	CENTCIT	.011 (.26)	.008 (.29)	.026 (.87)	.008 (.25)	-.012 (.41)	.006 (.18)	-.002 (.05)
	INDSUB	-.055 (.80)	-.018 (.43)	-.021 (.46)	-.032 (.70)	-.040 (.82)	-.032 (.65)	-.044 (.95)
	PHSED		-.680*** (11.81)	-.667*** (11.13)	-.668*** (11.16)	-.655*** (10.94)	-.652*** (10.82)	-.575*** (9.81)
	MILIT		-.739*** (19.70)	-.743*** (19.62)	-.740*** (19.62)	-.736*** (19.61)	-.733*** (19.20)	-.720*** (19.86)
	CPROGHS			.004 (.11)	.005 (.14)			
	VPROGHS			.049 (1.24)	.043 (1.09)			
	WPROGHS			.034 (.90)				
	BSTWSTD				.096* (1.64)	.096** (1.66)	.095* (1.62)	.041 (.73)
	OTHWSTD				-.003 (.08)	-.011 (.27)	-.003 (.07)	-.007 (.17)
	AUTO					-.024 (.50)		
	AUTOCO						-.047 (.76)	-.041 (.70)
	RAUTO						-.001 (.01)	-.007 (.12)
	CARP					.003 (.07)		
	CARPCO						.004 (.06)	.056 (.95)
	RCARP						.005 (.07)	.028 (.49)
	ELECT					.047 (1.07)		
	ELECTCO						.047 (.89)	.075* (.148)
	RELECT						.044 (.74)	.064 (1.14)
	METAL					.049* (1.37)		
	METACO						.026 (.63)	.038 (.97)
	RMETAL						.100** (1.84)	.110** (2.14)
	MISCRFT					-.127 (1.58)	-.120 (1.48)	-.089 (1.15)
	KTWKSEMP							.0022*** (5.70)
	CONSTANT	.240 (.59)	.625*** (2.54)	.659*** (2.66)	.724*** (2.88)	.655*** (2.62)	.674*** (2.68)	.629*** (2.64)
	R^2	.017	.641	.644	.646	.654	.656	.693
	F	.64	51.05***	39.31***	36.78***	30.99***	24.98***	28.05***
	D.F.	(8,288)	(10,286)	(13,283)	(14,282)	(17,279)	(21,275)	(22,274)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-12: Results of the Multiple Regression Analysis of the Proportion of the Post-High School Labor Force Period during which the Student was Unemployed (N=281)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PUNEMPRT	KAGEGRAD	-.0004	-.0004	-.0004	.002	-.002	-.002	.003	.004	.004
		(.03)	(.04)	(.04)	(.20)	(.21)	(.16)	(.30)	(.39)	(.42)
	BRACE	-.011	-.010	-.011	.002	-.010	-.007	-.032	-.006	-.006
		(.33)	(.31)	(.31)	(.06)	(.26)	(.20)	(.89)	(.16)	(.17)
	SPRACE	-.013	-.015	-.015	.008	-.007	-.001	-.052	-.115	-.115
		(.17)	(.19)	(.18)	(.09)	(.08)	(.01)	(.64)	(1.45)	(1.45)
	FATHGRAD	-.019	-.018	-.018	-.022	-.022	-.018	-.018	-.015	-.009
		(.96)	(.91)	(.90)	(1.08)	(1.07)	(.88)	(.92)	(.55)	(.47)
	ABSFATH	.040*	.041*	.041*	.041*	.033	.035	.033	.030	.030
		(1.45)	(1.47)	(1.47)	(1.47)	(1.16)	(1.23)	(1.21)	(1.14)	(1.13)
	MOTHWRKS			.001	.004	.001	.003	.006	.015	.015
				(.07)	(.19)	(.05)	(.17)	(.32)	(.80)	(.81)
	CENTCIT	.015	.016	.016	.001	-.007	-.009	-.008	-.008	-.007
		(.74)	(.77)	(.77)	(.06)	(.25)	(.32)	(.30)	(.31)	(.28)
	INDSUB	.015	.016	.016	.006	.002	.002	.005	-.004	-.003
		(.44)	(.48)	(.48)	(.18)	(.04)	(.04)	(.14)	(.12)	(.08)
	MILIT		-.021	-.021	-.015	-.012	-.018	-.020	-.248***	-.248***
			(.55)	(.55)	(.38)	(.33)	(.45)	(.53)	(4.09)	(4.09)
	PHSED		-.025	-.025	-.023	-.036	-.039	-.079*	-.294***	-.296***
			(.53)	(.53)	(.47)	(.72)	(.77)	(1.58)	(4.42)	(4.43)
	CPROGHS				.021					
					(.78)					
	VPROGHS				-.016					
					(.54)					
	WPROGHS				-.020					
					(.65)					
	BSTWSTD					.034	.034	.062	.098**	.097**
						(.74)	(.73)	(1.38)	(2.22)	(2.19)
	OTHWSTD					-.042	-.004	-.037	-.037	-.036
						(1.20)	(1.24)	(1.10)	(1.14)	(1.08)
	AUTO					-.006				
						(.15)				
	AUTOCO						.058	.054	.060	.060
							(1.19)	(1.13)	(1.33)	(1.33)
	RAUTO						.030	.051	.001	.001
							(.20)	(.36)	(.01)	(.01)
	CARP					.003				
						(.07)				
	CARPCO						.001	-.016	-.003	-.003
							(.02)	(.33)	(.06)	(.07)
	RCARP						.099	.102	.080	.083
							(.67)	(.72)	(.59)	(.61)
	ELECT					-.029				
						(.75)				
	ELECTCO						-.003	-.014	.004	.003
							(.06)	(.35)	(.11)	(.09)
	RELECT						.048	.053	.036	.037
							(.33)	(.38)	(.26)	(.27)
	METAL					-.035				
						(1.00)				
	METACO						.013	-.002	.008	.007
							(.40)	(.06)	(.26)	(.24)
	RMETAL						.007	.018	.008	.011
							(.05)	(.13)	(.06)	(.08)
	MISCRFT					.122*	.167**	.166**	.151**	.151**
						(1.66)	(2.06)	(2.10)	(1.99)	(1.99)
	KPWAGE									-.0001
										(.42)
	LABPART							-.143***	-.115***	-.113***
								(4.33)	(3.55)	(3.47)
	PLABPART								-.333***	-.333***
									(4.69)	(4.68)
	CONSTANT	.085	.087	.087	.049	.139	.126	.148	.411**	.417**
		(.44)	(.45)	(.45)	(.25)	(.70)	(.63)	(.77)	(2.12)	(2.14)
	R^2	.018	.020	.020	.028	.059	.069	.133	.201	.202
	F	.715	.616	.552	.601	.913	.875	1.712**	2.680***	2.581***
	D.F.	(7,273)	(9,271)	(10,270)	(13,267)	(18,262)	(22,258)	(23,257)	(24,256)	(25,255)

Notes: (1) t-statistics are in parentheses.

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-13: Results of the Multiple Regression Analysis of the Determinants of the Average Hourly Wage Earned by Students during the Post-High School Follow-Up Period (N=280)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
KPWAGE	KAGEGRAD	8.5** (2.02)	8.1** (1.85)	8.0** (1.88)	8.5** (1.98)	8.2** (1.89)	7.2** (1.67)
	BRACE	-3.5 (.25)	-5.4 (.37)	-6.4 (.45)	-3.6 (.26)	-5.0 (.34)	.2 (.01)
	SPRACE	-3.4 (.11)	-7.1 (.22)	.3 (.01)	2.3 (.07)	1.8 (.05)	11.1 (.34)
	FATHGRAD	13.9** (1.74)	14.5** (1.80)	14.2** (1.80)	14.2** (1.79)	16.6** (2.03)	16.4** (2.03)
	ABSFATH	-2.5 (.23)	-2.5 (.23)	1.0 (.09)	2.6 (.23)	3.2 (.28)	2.9 (.26)
	MOTHWRKS	6.0 (.80)	5.6 (.74)	5.6 (.75)	5.9 (.78)	7.4 (.97)	7.0 (.91)
	CENTCIT	-9.1 (1.10)	-6.4 (.66)	-2.7 (.28)	-2.4 (.26)	1.0 (.09)	.1 (.01)
	INDSUB	5.1 (.38)	6.4 (.45)	11.1 (.80)	14.2 (.93)	16.4 (1.06)	15.9 (1.04)
	CPROGHS		-1.9 (.18)	-5.4 (.53)			
	VPROGHS		3.8 (.32)	-.2 (.01)			
	WPROGHS		4.7 (.39)	.9 (.07)			
	BSTWSTD				-8.5 (.47)	-9.0 (.49)	-15.3 (.84)
	OTHWSTD				5.6 (.41)	7.1 (.51)	6.5 (.46)
	AUTO				.5 (.04)		
	AUTOCO					10.9 (.57)	10.9 (.58)
	RAUTO					-10.2 (.52)	-11.7 (.61)
	CARP				4.5 (.30)		
	CARPCO					-8.7 (.44)	-3.7 (.18)
	RCARP					16.4 (.86)	20.5 (1.08)
	ELECT				-10.3 (.76)		
	ELECTCO					-15.5 (.96)	-12.4 (.77)
	RELECT					-4.4 (.24)	-2.3 (.13)
	METAL				-3.1 (.29)		
	METACO					-5.7 (.47)	-3.5 (.28)
	RMETAL					3.3 (.19)	6.6 (.39)
	MISCRFT				-16.7 (.63)	-14.7 (.54)	-13.0 (.48)
	KTWKSEMP						.27* (2.14)
	KPWKSEMP			.63*** (3.67)	.63 (3.56)	.64 (3.57)	.52*** (2.79)
	TWKSEMP						
	COOPEMP						
	REGEMP						
	WORKEMP						
	GENEMP						
	CONSTANT	132.1** (1.71)	138.1** (1.76)	99.2* (1.29)	89.0 (1.13)	89.6 (1.13)	94.9 (1.20)
	R^2	.040	.041	.087	.092	.100	.116
	F	1.400	1.043	2.120**	1.675**	1.442*	1.611**
	D.F.	(8,271)	(11,268)	(12,267)	(16,263)	(20,259)	(21,258)

Notes: (1) t-statistics are in parentheses.
(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-14: Results of the Multiple Regression Analysis of the Hourly Wage Earned by Students On the Job Held as of the Final Interview (N=270)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LSTWAGE	KAGEGRAD	2.7	2.6	.9	1.0	.8	1.7	1.5
		(.41)	(.38)	(.13)	(.15)	(.12)	(.26)	(.23)
	BRACE	-17.1	-13.8	-12.8	-4.9	-3.1	-6.3	-3.8
		(.81)	(.63)	(.58)	(.23)	(.14)	(.29)	(.17)
	SPRACE	-26.4	-25.1	-32.1	-32.1	-21.9	-5.7	-1.7
		(.55)	(.51)	(.66)	(.66)	(.44)	(.12)	(.04)
	FATHGRAD	2.6	2.6	2.1	2.1	4.8	5.9	6.0
		(.21)	(.21)	(.17)	(.17)	(.37)	(.48)	(.48)
	ABSFATH	-6.9	-6.0	-1.1	-1.1	-.4	8.2	8.3
		(.41)	(.36)	(.07)	(.07)	(.02)	(.49)	(.49)
	MOTHWRKS	-.4	.6	1.5	1.5	3.3	2.5	2.2
		(.03)	(.05)	(.13)	(.13)	(.28)	(.21)	(.19)
	CENTCIT	-18.3*	-20.9*	-21.1*	-21.1*	-21.5	-13.9	-14.5
		(1.44)	(1.43)	(1.45)	(1.45)	(1.27)	(.84)	(.87)
	INDSUB	29.1	24.1	26.6	26.6	28.6	37.6	36.9
		(1.41)	(1.10)	(1.14)	(1.14)	(1.21)	(1.64)	(1.61)
	CPROGHS		14.4	-4.3				
			(.90)	(.24)				
	VPROGHS		9.2	-1.6				
			(.50)	(.09)				
	WPROGHS		6.5					
			(.36)					
	BSTWSTD			-2.6	-.9	-.2	-4.0	-6.5
				(.09)	(.03)	(.01)	(.15)	(.24)
	OTHWSTD			10.3	8.9	8.3	3.8	3.8
				(.48)	(.42)	(.38)	(.19)	(.18)
	AUTO				7.7			
					(.34)			
	AUTOCO					37.3	37.6*	38.4*
						(1.24)	(1.30)	(1.32)
	RAUTO					-24.9	-26.8	-27.0
						(.83)	(.92)	(.93)
	CARP				15.6			
					(.66)			
	CARPCO					26.8	17.8	20.5
						(.86)	(.59)	(.67)
	RCARP					2.5	-.7	1.5
						(.08)	(.02)	(.05)
	ELECT				-13.1			
					(.62)			
	ELECTCO					-24.9	-35.5	-33.5
						(.98)	(1.43)	(1.33)
	RELECT					1.1	1.2	1.7
						(.04)	(.04)	(.06)
	METAL				-1.4			
					(.07)			
	METACO					-7.6	-8.4	-7.2
						(.38)	(.43)	(.37)
	RMETAL					9.9	-1.7	-.4
						(.37)	(.06)	(.01)
	MISCRFT				-70.8*	-73.3*	-57.2	-56.1
					(1.73)	(1.78)	(1.42)	(1.39)
	KTWKSEMP							.11
								(.56)
	KFWKSEMP						1.12***	1.08***
							(4.09)	(3.78)
	COOPEMP							
	REGEMP							
	WORKEMP							
	GENEMP							
	KTWAGE							
	PROFMN			-28.7	-26.6	-30.7	-37.7	-38.1
				(.85)	(.78)	(.90)	(1.14)	(1.14)
	CLERSL			9.3	10.8	7.9	-6.8	-6.5
				(.48)	(.56)	(.40)	(.35)	(.33)
	CRAFTS			39.4***	40.0***	40.8***	29.7**	29.3**
				(2.50)	(2.54)	(2.58)	(1.90)	(1.87)
	OPERT			26.6*	27.5*	29.4*	21.6	21.6
				(1.45)	(1.50)	(1.59)	(1.19)	(1.20)
	TRANSP			53.2**	51.6**	47.4**	43.4*	42.2*
				(1.87)	(1.83)	(1.65)	(1.56)	(1.51)
	CONSTANT	295.5***	290.4***	305.3***	304.0***	305.1***	221.7**	220.0**
		(2.46)	(2.38)	(2.47)	(2.46)	(2.47)	(1.82)	(1.80)
	R^2	.034	.037	.075	.093	.109	.166	.167
	F	1.151	.905	1.202	1.274	1.247	1.941***	1.873***
	D.F.	(8,261)	(11,258)	(17,252)	(20,249)	(24,245)	(25,244)	(26,243)

Notes: (1) t-statistics are in parentheses.

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-15: Results of the Multiple Regression Analysis of the Students' Assessments of Their Overall Satisfaction with the Jobs They Held as of the Last Interview (N=235)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
KPSATIS	KAGEGRAD	.03 (.30)	.05 (.65)	.01 (.15)	.01 (.03)	.01 (.18)	-.03 (.39)
	BRACE	-.32 (1.15)	-.36* (1.33)	-.62** (2.27)	-.60** (2.18)	-.68*** (2.45)	-.62** (2.24)
	SPRACE	.01 (.01)	-.05 (.06)	-.42 (.64)	-.48 (.72)	-.39 (.59)	-.64 (1.00)
	FATHGRAD	-.09 (.55)	-.05 (.30)	.01 (.09)	.02 (.13)	.01 (.06)	.04 (.28)
	ABSFATH	.06 (.27)	.07 (.30)	.08 (.37)	.07 (.30)	.03 (.15)	.03 (.14)
	MOTHWRKS	.08 (.54)	.10 (.70)	.05 (.35)	.04 (.28)	.01 (.05)	-.02 (.12)
	CENTCIT	.01 (.09)	-.01 (.01)	.35* (1.86)	.29 (1.44)	.31 (1.55)	.33 (1.59)
	INDSUB	-.28 (1.07)	-.18 (.69)	.17 (.60)	.13 (.46)	.08 (.29)	.11 (.41)
	CPROGHS			-.60*** (3.00)	-.59*** (2.90)	-.47** (2.21)	-.55*** (2.48)
	VPROGHS			-.03 (.12)	-.04 (.16)	.09 (.36)	-.01 (.05)
	WPROGHS			.28 (1.18)			
	BSTWSTD				.56 (1.41)	.58 (1.47)	.64 (1.61)
	OTHWSTD				.18 (.68)	.23 (.89)	.19 (.71)
	LSTWAGE		-.002*** (3.09)	-.002*** (3.33)	-.002*** (3.28)	-.002*** (3.19)	-.002*** (3.14)
	LSTHRS					-.015 (1.37)	-.016* (1.47)
	RELASTD					-.21* (1.33)	-.09 (.54)
	PROFMN						-.61* (1.40)
	CLERSL						-.24 (.95)
	CRAFTS						-.20 (.90)
	OPERT						.40* (1.70)
	TRANSP						-.08 (.24)
	CONSTANT	1.85 (1.20)	2.09* (1.38)	2.84** (1.91)	3.05** (2.02)	3.42** (2.22)	4.35*** (2.81)
	R^2	.015	.055	.118	.121	.137	.183
	F	.437	1.466	2.479***	2.346***	2.317***	2.393***
	D.F.	(8,226)	(9,225)	(12,222)	(13,221)	(15,219)	(20,214)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-16: Results of the Multiple Regression Analysis of the Student's Decision to Either Enroll Ful[illegible] Time in a Post-Secondary Educational Institution or Enlist in a Branch of the Military Ser[illegible]e (N=299)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
LOWPART	KAGEGRAD	-.016 (.66)	-.015 (.63)	-.015 (.62)	-.007 (.31)	-.004 (.17)	-.004 (.16)
	BRACE	.016 (.21)	.016 (.20)	-.009 (.11)	-.051 (.64)	-.038 (.47)	-.037 (.46)
	SPRACE	-.115 (.62)	-.122 (.66)	-.123 (.64)	-.203 (1.07)	-.179 (.94)	-.179 (.94)
	FATHGRAD	.031 (.69)	.030 (.66)	.029 (.64)	.035 (.78)	.039 (.88)	.040 (.88)
	ABSFATH	.031 (.49)	.031 (.49)	.027 (.43)	.026 (.42)	.027 (.43)	.027 (.42)
	MOTHWRKS		-.016 (.37)	-.026 (.59)	-.015 (.36)	-.005 (.12)	-.005 (.11)
	CENTCIT	-.002 (.04)	-.004 (.09)	.016 (.29)	.034 (.63)	.028 (.49)	.028 (.49)
	INDSUB	.027 (.35)	.027 (.35)	.078 (.96)	.082 (1.01)	.074 (.90)	.073 (.89)
	CPROGHS			-.092* (1.55)	-.104** (1.77)	-.121** (2.07)	-.122** (2.06)
	VPROGHS			-.080 (1.17)	-.081 (1.20)	-.101* (1.51)	-.102* (1.51)
	WPROGHS			-.003 (.04)	.022 (.34)		
	BSTWSTD					-.010 (.09)	-.010 (.10)
	OTHWSTD					-.001 (.01)	-.002 (.03)
	AUTO						
	AUTOCO						
	RAUTO						
	CARP						
	CARPCO						
	RCARP						
	ELECT						
	ELECTCO						
	RELECT						
	METAL						
	METACO						
	RMETAL						
	MISCRFT						
	KTWKSEMP				-.002*** (3.12)	-.002*** (2.65)	-.002** (2.22)
	KTWAGE					-.001** (1.70)	-.001** (1.70)
	UNEMPRTE						.025 (.15)
	CONSTANT	.414 (.94)	.413 (.94)	.454 (1.03)	.450 (1.03)	.555 (1.24)	.546 (1.20)
	R^2	.007	.008	.020	.052	.061	.061
	F	.298	.277	.528	1.308	1.324	1.234
	D.F.	(7,291)	(8,290)	(11,287)	(12,286)	(14,284)	(15,283)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-18A: Results of the Multiple Regression Analysis of the Factors Influencing the Decisions of Students to Enroll Full-Time in a Post-Secondary Educational Institution (N=297)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PHSED	KAGEGRAD	.013 (.99)	.017 (1.31)	.018 (1.31)	.018 (1.32)	.018 (1.32)	.016 (1.24)	.017 (1.26)
	BRACE	.030 (.67)	-.001 (.02)	-.002 (.04)	.001 (.003)	-.001 (.02)	-.007 (.16)	-.006 (.14)
	SPRACE	.014 (.13)	-.047 (.45)	-.053 (.51)	-.045 (.43)	-.052 (.50)	-.046 (.44)	-.049 (.47)
	FATHGRAD	.011 (.45)	.015 (.63)	.015 (.60)	.016 (.65)	.015 (.61)	.012 (.51)	.011 (.44)
	ABSFATH	.015 (.41)	.010 (.30)	.010 (.29)	.010 (.30)	.010 (.29)	.012 (.34)	.012 (.35)
	MOTHGRAD			-.001 (.05)		-.001 (.03)		.003 (.13)
	MOTHWRKS	.007 (.28)	.012 (.50)		.012 (.52)		.011 (.46)	
	CENTCIT	-.031 (.97)	-.025 (.78)	-.026 (.82)	-.025 (.79)	-.026 (.83)	-.023 (.74)	-.025 (.79)
	INDSUB	.042 (.94)	.043 (.98)	.044 (1.00)	.043 (.97)	.044 (.98)	.049 (1.11)	.049 (1.11)
	CPROGHS	-.137*** (4.16)	-.144*** (4.47)	-.145*** (4.48)	-.145*** (4.47)	-.146*** (4.48)	-.141*** (4.40)	-.142*** (4.39)
	VPROGHS	-.139*** (3.68)	-.140*** (3.80)	-.141*** (3.82)	-.140*** (3.81)	-.142*** (3.82)	-.138*** (3.77)	-.138*** (3.76)
	WPROGHS							
	BSTWSTD	-.144*** (2.50)	-.100** (1.75)	-.097** (1.70)	-.099** (1.74)	-.097** (1.69)	-.094** (1.66)	-.090* (1.59)
	OTHWSTD	-.131*** (3.13)	-.123*** (3.01)	-.122*** (2.99)	-.123*** (3.01)	-.122*** (2.99)	-.115*** (2.84)	-.115*** (2.83)
	AUTO							
	AUTOCO							
	RAUTO							
	CARP							
	CARPCO							
	RCARP							
	ELECT							
	ELECTO							
	RELECT							
	METAL							
	METACO							
	RMETAL							
	MISCRFT							
	KTWKSEMP		-.001*** (3.96)	-.001*** (3.92)	-.001*** (3.83)	-.001*** (3.79)	-.002*** (4.56)	-.002*** (4.53)
	KTWAGE				-.0001 (.27)	-.0001 (.21)	-.0001 (.32)	-.0001 (.29)
	UNEMPRTE						-.224** (2.43)	-.226** (2.45)
	CONSTANT	-.096 (.39)	-.067 (.28)	-.064 (.26)	-.057 (.23)	-.057 (.23)	.023 (.09)	.016 (.06)
	R^2	.089	.137	.136	.137	.136	.155	.154
	F	2.31***	3.45***	3.43***	3.20***	3.18***	3.43***	3.42***
	D.F.	(12,284)	(13,283)	(13,283)	(14,282)	(14,282)	(15,281)	(15,281)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level
** significant at the .05 level
* significant at the .10 level

Table 10-16B: Results of the Multiple Regression Analysis of the Factors Influencing the Decisions of Students to Enlist Full-Time in a Branch of the Military Service (N=297)

Dependent Variable	Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
MILIT	KAGEGRAD	-.031* (1.43)	-.030* (1.37)	-.033* (1.52)	-.028* (1.29)	-.031* (1.41)	-.027 (1.22)
	BRACE	-.047 (.68)	-.057 (.81)	-.067 (.92)	-.047 (.66)	-.055 (.75)	-.039 (.55)
	SPRACE	-.138 (.82)	-.158 (.93)	-.162 (.95)	-.144 (.85)	-.148 (.87)	-.143 (.85)
	FATHGRAD	.009 (.23)	.010 (.26)	.020 (.49)	.016 (.40)	.024 (.59)	.020 (.50)
	SES						
	ABSFATH	.013 (.23)	.011 (.20)	.008 (.15)	.012 (.21)	.010 (.16)	.010 (.18)
	MOTHGRAD			-.038 (.88)		-.031 (.73)	
	MOTHWRKS	-.035 (.93)	-.034 (.89)		-.027 (.71)		-.025 (.66)
	CENTCIT	.056 (1.10)	.058 (1.14)	.064 (1.26)	.055 (1.07)	.059 (1.17)	.053 (1.04)
	INDSUB	.065 (.91)	.066 (.91)	.071 (.98)	.060 (.84)	.065 (.90)	.054 (.75)
	CPROGHS	.028 (.55)	.026 (.50)	.024 (.45)	.019 (.36)	.017 (.32)	.015 (.29)
	VPROGHS	.057 (.95)	.057 (.95)	.055 (.92)	.049 (.82)	.048 (.80)	.046 (.78)
	WPROGHS						
	BSTWSTD	.075 (.82)	.089 (.96)	.070 (.75)	.093 (1.00)	.078 (.83)	.087 (.94)
	OTHWSTD	.129** (1.96)	.132** (1.99)	.131** (1.98)	.131** (1.97)	.130** (1.96)	.122* (1.84)
	AUTO						
	AUTOCO						
	RAUTO						
	CARP						
	CARPCO						
	RCARP						
	ELECT						
	ELECTCO						
	RELECT						
	METAL						
	METACO						
	RMETAL						
	MISCRFT						
	KTWKSEMP		.0005 (.79)	-.001 (.92)	-.0003 (.46)	-.0004 (.57)	-.0003 (.42)
	KTWAGE				-.001** (1.65)	-.001** (1.65)	-.001* (1.62)
	UNEMPRTE						.252** (1.68)
	CONSTANT	.603* (1.53)	.613* (1.55)	.690** (1.71)	.716** (1.80)	.781** (1.92)	.625* (1.56)
	R^2	.027	.029	.029	.039	.039	.048
	F	.662	.658	.657	.81	.81	.95
	D.F.	(12,284)	(13,283)	(13,283)	(14,282)	(14,282)	(15,281)

Notes: (1) t-statistics are in parentheses

(2) *** significant at the .01 level

** significant at the .05 level

* significant at the .10 level

Chapter XI

SUMMARY OF FINDINGS AND IMPLICATIONS FOR POLICY

The previous chapters of this study have provided both a description and an analysis of the in-school and post-high school labor market experiences of a sample of 427 students who were enrolled in four different types of high school programs during their junior and senior years. These four program categories were cooperative vocational, regular vocational, work study, and general academic. A major objective of this study was to determine the extent to which students who particpated in cooperative vocational programs succeeded in making a smoother and more effective transition into the labor market upon graduation from high school.

This chapter provides a brief summary of the major findings of the study and outlines the implications of these findings for the future design and administration of youth vocational education and youth employment and training programs.

Scope and Coverage of Study

The 427 students graduated from their high schools during the Spring of 1972. The schools they attended were located in nine different cities and towns in one metropolitan area within the State of Massachusetts. During the course of the study, students were interviewed from 18 different high schools, including nine schools located within the central city of this metropolitan area. Initial interviews were conducted with the students during their senior year of high school. The distribution of the students by type of program was as follows: cooperative vocational, 127; regular vocational, 99; work study, 88; and general academic, 113. The students were interviewed once during the senior year and either two or three times during the post-high school, follow-up period, which varied in length from 16 1/2 to 21 months from the date of graduation.[1]

The In-School Labor Market Experiences

The labor market experiences of the students during the junior and senior years of high school have been described and analyzed in Chapters IV, V, and X. The findings of the analysis with respect to the labor force participation, employment, unemployment, hourly wages, and gross earned incomes of the students during this two-year period before graduation are summarized below.[1]

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[1] The final interviews with the students took place between the middle of October 1973 and February 1974. The average length of the follow-up period was 18 months.

(1) Labor Force Participation. Students in the coop programs did not participate in the labor force to a significantly greater degree than their peers in either the regular vocational or general academic programs. Students in the work study programs did, however, participate in the labor force for a significantly greater number of weeks than students in the other three programs.

The exceptional labor force experiences of students in the work study programs were heavily influenced by the extraordinarily high rates of labor force participation of students in a high-support work study program located in the central city. These students were in the labor force for nearly 98 percent of the weeks in this two-year period. The students in all four of these high school programs tended on average to participate quite actively in the labor force during their junior and senior years. The students were in the labor force an average of 74.5 weeks, or nearly 72 percent of the total number of weeks during the two-year time period.

(2) Weeks of Employment. Students in the cooperative programs did not obtain significantly more weeks of employment during their combined junior and senior years than their counterparts in the vocational or general academic programs.[2] Students in the work study programs did, however, average significantly more weeks of employment than the students in the other programs. The superior performance of the work study students was due entirely to the employment records of those work study students enrolled in the high-support central city work study program. The findings of the multivariate statistical analysis revealed that participants in central city work study programs were employed 33 more weeks than the general academic students.

The typical student in the four programs was employed for a substantial number of weeks during the last two high school years. The mean number of weeks of employment obtained by these students (367) during the senior years was 36.8 weeks. Both Black and Spanish-speaking students were significantly less likely to be employed than other students during their junior and senior years.

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[1] The junior and senior years of high school were defined for purposes of analysis as the two-year period from 6/1/70 to 5/31/72.

[2] The findings of the multivariate statistical analysis of weeks employed during the senior year of high school revealed that students in both the cooperative metal-related trades programs and the regular auto-related trades programs obtained significantly more weeks of employment than students in the general academic programs.

(3) Unemployment Experiences. The unemployment experiences of the students were analyzed from both an absolute and relative standpoint; i.e., relative to the total number of weeks that a student participated in the labor force during this two-year period. The results revealed that there were no significant differences in the mean absolute number of weeks of unemployment encountered by students in these four programs. There was, however, a rather substantial amount of variation in the unemployment experiences of individual students. The mean number of weeks of unemployment during this two-year period was 5.8, with a standard deviation of 9.7 weeks.

The mean relative amounts of unemployment also did not vary significantly among the students in the four programs. However, students in several selected trade and work study programs, including the high-support work study program and the cooperative metal-related trades programs did experience significantly lower relative amounts of unemployment than students in the general academic programs.

The findings of the multivariate statistical analysis also revealed that the degree of labor force attachment of students did significantly influence their unemployment experiences. Students who participated more actively in the labor force as juniors and seniors encountered, *ceteris paribus*, significantly fewer weeks of unemployment in both an absolute and relative sense.

(4) Occupations and Industries of Jobs Held. The occupational and industrial characteristics of the jobs held during the high school years by students in these four types of programs varied significantly. The coop students were more likely to be employed in the goods producing sectors of the local economy, particularly construction and durable goods manufacturing, during both their junior and senior years. For example, during the senior year, 58.2 percent of the jobs held by coop students were in construction and manufacturing. In comparison, only 25.2 percent, 22.9 percent and 13.9 percent of the jobs obtained by students in the voc ed, work study, and academic programs respectively, were in such industries. Between 60 percent and 70 percent of the jobs obtained by students in the latter three programs were in retail trade, wholesale trade, and the private services sector of the local economy.

The occupational distributions of the jobs held by the students during both their junior and senior years also varied significantly by type of program. Students in the cooperative programs were significantly more likely to be employed in craftsmen-related and operatives occupations during both their junior and senior years. For example, during their senior year, 71.7 percent of all the jobs held by coop students were in the craftsmen-related and operatives occupations, in comparison to only 38.2 percent, 29.1 percent and 22.8 percent of the jobs held by students in the voc ed, work study and academic programs, respectively. Nearly one-half of all the jobs obtained by students in these last three programs were as laborers and service workers.

(5) Average Hourly Wages. The mean hourly wages earned by students on jobs held during the junior year ranged from a low of $2.01 for cooperative vocational students to a high of $2.12 for students in both the regular vocational and general academic programs.[1] None of the differences in wages between coop students and those in the other three programs were significant at the .05 level.

The mean hourly wages of jobs obtained by students during their senior year ranged from a low of $2.16 for students in the cooperative programs to a high of $2.38 for students in the academic programs. The difference of $.22 was found to be statistically significant at the .05 level. This result was also supported by the findings of the multivariate statistical analysis of the average hourly wages earned by students during the junior and senior years of high school. The regression results revealed that sutdents who participated in the cooperative vocational programs were, ceteris paribus, likely to earn significantly lower hourly wages than students in the general academic programs (approximately 13¢ less per hour).

The finding that coop students actually earned lower hourly wages than students in the general academic programs was somewhat surprising, particularly in view of the fact that their jobs were concentrated in the construction and durable goods manufacturing industries which pay above average wages in the metropolitan area. Part of the explanation appeared to be the need for cooperative program administrators and staff to negotiate lower hourly wages with employers in order to provide students with jobs offering on-the-job training. The lower hourly wages of coop students thus represented a cost of investment to secure on-the-job training from employers. In addition, the typical employer of these students tended to be small, and possibly at the low end of his industry wage structure.

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[1] These hourly wages are mean weighted hourly wage rates. The weighting process was necessitated by the fact that some students held more than one job during the year. For such students, weights were assigned to the hourly wage of each job held, with the weight being determined by the proportion of the total weeks of employment during the year accounted for by that job.

(6) Gross Earned Incomes. The data on weeks of employment, average hourly wages, and average hours of work per week of employment were combined to generate estimates of the gross earned incomes of students during the high school years. The mean level of gross earned income during the junior and senior years combined for the students was $3970, with a standard deviation of $2524.

Coop students did not earn significantly higher incomes than students in either the voc ed programs or the general academic programs. Students in the work study programs did, however, earn significantly higher gross incomes than students in the other three programs. The findings of the multiple regression analysis revealed that students who were enrolled in a work study program during the junior and senior years of high school earned, ceteris paribus, approximately $952 more than students in general academic programs. Those students who participated in the high-support, central city work study program earned $1652 more than comparable students in the general academic programs.

(7) On-The-Job Training. During the in-school interviews, students were asked if they had received some type of training on the jobs that they held during high school. Students in the cooperative programs were significantly more likely to have received some training on-the-job from employers. Slightly more than 63 percent of the jobs held by coop students provided some type of training, incomparison to 47.8 percent, 59.6 percent, and 50.9 percent of the jobs held by students in the vocational, work study, and general academic programs, respectively. The differences in the distributions of these responses were significant at the .01 level.

Those students who stated that they had received some type of training from employers were asked to describe the type and duration of that training. Students in the coop programs were significantly more likely to have received longer-term training on the jobs they held. Approximately one-third of the jobs containing some type of training component provided longer-term skills training for coop students in comparison to only 18.0 percent, 13.2 percent and 15.9 percent of the jobs held by students in the regular vocational, work study and general academic programs, respectively.[1] The provision of longer OJT tended to be associated with the occupations of the jobs held, with craftsmen-related and operative occupations most likely to receive it.

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[1] The differences in the distributions of these responses among the four types of high school programs were significant at the .001 level.

(8) Students' Assessments of Jobs Held. During the in-school interviews, students were asked if they felt that they had learned anything valuable on their current or previous jobs. Students in the cooperative vocational programs were significantly more likely to respond in the affirmative. The coop students stated that they had learned something valuable on 60.1 percent of the jobs held during high school in comparison to only 51.0 percent, 46.9 percent, and 47.3 percent of the jobs held by students in the regular vocational, work study, and general academic programs, respectively.[1] The coop students were also substantially more likely to feel that the jobs they held taught them valuable job skills for use in future employment. The learning of work rules, job discipline, and appropriate behavior toward fellow employees was more likely to be cited by students in the other three types of high school programs.

The Post-High School Labor Market Experiences

The labor market experiences of the students in the post-high school, follow-up period were described and analyzed in Chapters VII, VIII, and X. The major findings of those chapters are summarized below.

(1) Length of Time Required to Obtain the First Post-High School Job. The immediate transition from school to work, in terms of obtaining "a job", was a rather smooth one for the vast majority of the graduates of all four high school programs. More than 75 percent of the graduates who held at least one job during the post-high school, follow-up period had been able to obtain a job (full or part-time) within one week of the date of their graduation from high school. The proportion of cooperative program graduates finding a job within one week of graduation (75.7 percent) was identical to that of all graduates. While this proportion was slightly above that of graduates from both the regular vocational (72.6 percent) and general academic programs (70.3 percent), the differences were not statistically significant.

A relatively high proportion of the first post-high school jobs obtained by graduates from the cooperative and work study programs were "carryover" jobs that were held either full-time or part-time during the school year (approximately 54 percent and 59 percent, respectively). The proportion for graduates of both the vocational and general academic programs was 44 percent.

The role of the high school in securing the graduates' first post-high school jobs also varied significantly among the four programs. The school

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[1] The differences in the distributions of these responses among the four types of high school programs were significant at the .02 level.

364

particularly was a major source of information for graduates of the cooperative vocational programs. Nearly 44 percent of the first post-high school jobs of coop graduates were obtained with the assistance of school officials. The proportions of school-assisted jobs for graduates of the work study, vocational, and academic programs were 31.8 percent, 17.2 percent and 6.5 percent, respectively.

(2) Characteristics of First Post-High School Jobs. The occupational and industrial characteristics of the first post-high school jobs obtained by graduates of these four high school programs varied significantly. These findings are thus quite similar to those for the industries and occupations of jobs held by students during their high school years.

Approximately 53.5 percent of the first post-high school jobs obtained by graduates of the coop programs were in the durable manufacturing and construction industries. Only 31.0 percent of the first jobs held by graduates of the regular vocational programs were in these same two industrial sectors. Graduates of the vocational, work study, and general academic programs were substantially more likely to be employed in retail trade and in private services. Only 23.3 percent of the graduates of the cooperative programs held their first post-high school job in these two sectors, compared to 53.9 percent, 42.8 percent, and 37.2 percent of the jobs obtained by graduates of the general academic, regular vocational, and work study programs, respectively.

Two-thirds of the first post-high school jobs held by the graduates of all four programs were blue collar, and approximately one-half of all these jobs were in crafts-related and operative occupations. Graduates of the coop programs were substantially more likely to be in crafts-related and operative occupations even in comparison to the graduates of the vocational programs. Nearly 72 percent of the coop graduates held jobs in these two occupational areas in comparison to 52.3 percent, 34.3 percent and 28.6 percent of the graduates of the voc ed, work study, and general academic programs, respectively. Nearly one-half of the jobs held by graduates of the work study and general academic programs were clerical and laborer positions.

(3) Beginning Hourly Wages and Weekly Hours of Work. The mean beginning hourly wage of the first post-high school jobs obtained by the graduates of these programs was $2.53, but there were variations among programs, with the cooperative vocational graduates having the lowest ($2.40) and work study program graduates the highest ($2.67). The comparable wages of graduates from the regular vocational and general academic programs were $2.49 and $2.61,

respectively. The differences in mean beginning hourly wages between these latter two groups and coop graduates were not statistically significant.[1]

Graduates of the cooperative programs were, however, significantly more likely to work full-time on their first post-high school job. More than 94 percent of the coop graduates worked 35 or more hours per week on their first job compared to only 78.6 percent, 77.1 percent and 64.0 percent of the graduates from the vocational, work study, and general academic programs, respectively. In fact, nearly 90 percent of the coop graduates worked 40 or more hours per week on their first post-high school jobs.

(4) Labor Force Participation. Coop graduates as whole did not participate in the civilian labor force during the follow-up period to a significantly greater degree than graduates of the general academic programs.[2] Graduates of the vocational and work study programs did, however, participate in the civilian labor force to a significantly greater degree than graduates of these general academic programs. However, the favorable labor force experiences of work study students applied only to those who had participated in the high-support, central city work study program.

When the cooperative program variable was replaced by the individual trade program variables, several of the cooperative trades programs appeared with positive and statistically significant coefficients. For example, graduates of the cooperative electrical-related trades programs did, *ceteris paribus*, participate in the civilian labor force to a significantly greater degree than graduates of the general academic program during the post-high school follow-up period.

(5) Employment Experiences.[3] Graduates of the coop programs were *not* employed to a significantly greater extent than graduates of the other programs,

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1. A two-tailed test was used in testing for the significance of these differences at the .05 level.

2. The civilian labor force participation variable was defined as the proportion of the total number of weeks in the student's follow-up period during which he participated in the civilian labor force. The total number of weeks spent in the civilian labor force was not used as a dependent variable since the maximum number of weeks during which an individual could have participated in the civilian labor force varied from one graduate to another.

3. Values for the employment variable were generated by dividing the total number of weeks of employment obtained by a graduate during the follow-up period by the total number of weeks covered by the follow-up period, which varied in length among the graduates.

including the general academic. The only significant difference in employment during the follow-up period was between the work study program graduates and the general academic program graduates. The former enjoyed significantly more employment than the latter. A more detailed analysis revealed that only the graduates of the high-support, central city work study program had a significantly greater amount of employment during the follow-up period. The graduates of this program were employed, ceteris paribus, approximately 9 percent more of the time during the post-high school, follow-up period than graduates of the general academic programs.

The findings of the multivariate statistical analysis also revealed that graduates of several of the vocational training programs, including the regular metal-related vocational programs and the cooperative electrical-related programs, fared significantly better in terms of employment than students in the general academic programs.

(6) Unemployment Experiences of the Graduates. During the follow-up period, the graduates of these four high school programs were unemployed on average only 8.3 percent of the weeks in which they participated in the civilian labor force. A wide variation in unemployment experiences existed among these graduates as evidenced by a standard deviation of 15.4 percent for this unemployment variable.

None of the major high school program variables had a significant impact upon the unemployment experiences of their graduates. Coop students were, ceteris paribus, just as likely to be unemployed to the same relative degree during the post-high, follow-up period as graduates of the other three types of high school programs. The findings of the multivariate statistical analysis of the post-high school unemployment experiences of the graduates did, however, indicate that students who were more strongly attached to the civilian labor force during the high school and post-high school periods were significantly less likely to be unemployed in the follow-up period. The extent of employment experiences of students during high school tended to influence significantly the extent of unemployment experienced after graduation from high school.

(7) Average Hourly Wages of Graduates. The average hourly wage of all jobs held by the graduates during the follow-up period was $2.91, with a standard deviation of $0.62. None of the major high school programs, including the cooperative, had a statistically significant impact upon the average hourly wages of the graduates. The findings of the multiple regression analysis did,

however, indicate that the average hourly wages of graduates were significantly influenced by the number of weeks of employment that they had obtained during both the high school years and the post-high school, follow-up period. Additional weeks of employment during high school and during the follow-up period had a positive impact on the average hourly wages of the graduates of all programs.

(8) Hourly Wages on Last Job Held. The mean hourly wage of the current or most recent jobs held by graduates at the time of the final interview was $3.37, with a standard deviation of $1.01. Again, none of the major high school programs had a significant impact upon the hourly wages of the last jobs held by the graduates. Coop graduates did not earn significantly higher hourly wages than graduates of the other three types of high school programs.

The final hourly wage of the graduates was, however, significantly influenced by both the number of weeks of employment they had obtained during the follow-up period and by the type of occupation in which the last job was held. Graduates employed in craftsmen-related and operative occupations, including transport equipment operatives, earned significantly higher hourly wages than graduates employed in clerical, sales, laborer and service occupations.

(9) Job Satisfaction of Graduates. During the final interview, the graduates were asked to assess their degree of satisfaction with their current job. Job satisfaction was measured on a six-point ordinal scale ranging from "very satisfied" to "extremely dissatisfied." The findings of the multivariate statistical analysis revealed that graduates of the coop programs were, *ceteris paribus*, significantly more satisfied with their final jobs than graduates of the other programs. The significantly higher job satisfaction rating of students may well have been influenced by the fact that they tended to have more clearly-defined occupational objectives than graduates of the other three types of programs.

The job satisfaction ratings of graduates were also significantly influenced by the hourly wage, the weekly hours of work, the training-related nature, and the occupation of the last job held. Those jobs characterized by higher hourly wages and above average hours of employment were rated more highly by graduates. In addition, jobs in the technical and managerial occupations as well as jobs in occupational areas related to the high school programs of the graduates tended to contribute to a higher overall job satisfaction rating.

Policy Implications of the Findings

The findings of this study have provided a mixed set of conclusions with respect to the effectiveness of cooperative high school programs. The coop students typically did not experience significantly higher rates of labor force participation, obtain more weeks of employment, earn higher hourly wages, or encounter lower rates of unemployment than their counterparts in the regular vocational and general academic programs during either the high school years or the 18-month post-high school, follow-up period.[1] On the other hand, the coop students were significantly more likely to value the jobs they held in high school, to receive on-the-job training from their employers during the high school years, to claim that their high school programs favorably affected their decision to remain in school, to attend class during the senior year, to obtain a full-time job immediately following graduation, to obtain a job related to their high school program, and to be more satisfied with their final jobs.

In reviewing the findings of this study with respect to the effectiveness of cooperative vocational programs, one should take into consideration the following two factors. First of all, several of the cooperative vocational programs included in this study had been in operation for only a brief period of time prior to our survey. The development of a viable and effective cooperative program is dependent upon the active support and cooperation of private employers. These types of relationships cannot be developed overnight, but rather, require both time and patience for a mutual relationship based upon trust and good faith to be built up between school officials, their students, and private employers. To the extent that "institution building" (with its attendant growth problems) was occurring in several of these schools at the time of our survey, the findings with respect to the performance of cooperative programs may be slightly biased downward as a true measure of their potential long-term effectiveness.

On the other hand, the bulk of the cooperative students were in the old cooperative programs in the central city. To some extent, they suffered from a dearth of imaginative innovative administrators and the schools themselves no longer were located optimally with respect to employment opportunities.

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[1] Studies of the employment and earning experiences of youth based upon the national longitudinal surveys of young men (14-24) have reached somewhat similar conclusions. See: (i) Parnes, Herbert S. and Kohen, Andrew I., "Labor Market Experience of Non-college Youth: A Longitudinal Analysis."From School to Work: Improving the Transition, (Editor: Eli Ginzberg, U.S. Government Printing Office, Washington, D.C., 1976; (ii) Grasso, John, "The Contributions of Vocational Education, Training and Work Experience to the Early Career Achievements of Young Men," The Ohio State University Center of Human Resource Research, Columbus, 1975.

Second of all, as was noted in Chapter III, a variety of factors influenced the students' choices of their high school programs. Some of the students in the coop programs, as was true of those in the other programs, selected their program for reasons unrelated to the acquisition of a specific set of vocational skills that they intended to utilize in their working careers. A number of the students enrolled in the cooperative vocational programs to attend a school in their neighborhood, to attend classes with their friends, to avoid academic courses, and to pick up a trade that they could "fall back upon" if their "other" occupational employment objectives were not achieved. As a result one should not view the decisions on the part of students to enroll in a cooperative vocational course (or work study course) as economic decisions motivated solely by their perceptions of the expected rate of return from their investments in such training. A sizeable fraction of the coop students (one-fourth to one-third of the sample) never intended to utilize their training in full-time jobs in the local labor market upon graduation. Nonetheless, the coop students were more likely than the regular vocational to be working in a new trade after graduation.

The overall findings of the study with respect to the in-school and post-high school labor market experiences of the students, including those in the other three types of high school programs, do appear to have a number of implications for the future design of educational employment, and training policies for youth. Among the major policy-related findings of this study are the following:

(1) Irrespective of vocational content, high school programs that provide both intensive job placement assistance and high support services to students can have a significant impact upon their labor force and employment experiences during the high school years and the immediate post-high school period. The high support work study program located in the central city provides a classic example of such a model program. The program staff's close ties with the immediate job site supervisors of the students and the use of "better" jobs as promotions to reward good performance were believed to have played a key role in producing the exceptionally high rate of success of the program in providing students with employment opportunities. Students in several of the cooperative trades programs that were characterized by firmly established relationships between employers and school officials also tended to have significantly higher

rates of labor force participation and employment in the post-high school period.[1]

(2) Students who were more strongly attached to the labor force during their high school years, irrespective of the type of high school program in which they were enrolled, tended to experience significantly lower absolute and relative amounts of unemployment during both the high school years and the immediate post-high school period. This particular finding tends to have important implications for policies designed to reduce youth unemployment per se. By providing young people with opportunities to participate actively (and successfully) in the labor force during the high school years, public policy initiatives may well succeed in reducing the high rates of unemployment encountered by young people upon their graduation from high school. Employment in even traditional "youth jobs" did appear to provide young workers with either the work habits, proper behavior toward fellow employees and supervisors, job search and interviewing knowledge, or employment histories to record on application forms that enabled them to avoid frequent and/or long spells of unemployment during school and upon their graduation from high school. At the same time jobs per se might not be enough. A case can be made that it was the individual attitudes and motivation of the students that were critical and the availability of jobs simply made possible the overt behavior described.

(3) Students in cooperative programs were significantly more likely to obtain jobs both in high school and in the immediate post-high school period that provided some types of training, particularly on-the-job training that developed work skills beyond a few days of informal instruction. The on-the-job training experiences of the coop students did not, however, yield a significant economic payoff to this group in the form of higher hourly wages.

It might be argued that the time period covered by the follow-up interviews was too short to observe the long-term effects of these investments in training by the coop graduates. On the other hand, the findings with respect to the characteristics of the establishments in which the coop students were typically employed indicated that the bulk of these jobs were in relatively small, non-union firms. Jobs in these firms may provide young employees with skills that allow them eventually to transfer to firms in the "core" sector of the economy, but may not yield favorable earning streams to employees who remain with their original firm.

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[1] The findings of the multivariate statistical analysis revealed that graduates of the cooperative electrical and metal-related trades programs were significantly more likely to participate in the labor force during the follow-up period than graduates of the general academic programs. The graduates of the cooperative electrical-related trades programs also were characterized by significantly higher rates of employment during the follow-up period.

It has been argued by others that placement in such "bridge jobs" should be a major objective of youth employment and training programs.[1] Cooperative vocational programs may be an effective vehicle for providing youth with exposure to "bridge jobs." Longer duration follow-up studies would be required to examine the long-term effectiveness of such "bridge jobs" in promoting the occupational and earnings mobility of young workers.

(4) Students who participated in cooperative vocational programs were significantly more likely to value the jobs they held in high school and to be more satisfied with the jobs they held at the time of the final interview. Coop programs seemed to have the advantage of exposing their students to jobs in the "adult" labor market prior to graduation from high school. While these students may eventually reject these jobs, including those related to their trades, they do have an opportunity to reformulate their occupational goals earlier in their working life and thus be more likely to hold a job with which they are "satisfied" prior to reaching the age of twenty. By providing students with more opportunities to work in "adult" jobs or in "adult-dominated" establishments during high school, cooperative programs may allow such students to establish more realistic occupational objectives and enable them to "settle down" in the labor market at an earlier age.

(5) Public policy efforts geared to an expansion of "employment related" high school programs, including cooperative vocational and work study programs, as well as regular vocational, should take into consideration some of the potential drawbacks of such programs. They do reduce the amount of academic instruction received by the students. A number of the participants in the coop programs did express concern during the interviews over their inadequate academic preparation for further formal education.

Students enrolled in the work study programs also frequently expressed complaints about the effectiveness of their programs in preparing them for skilled employment upon graduation. The bulk of the jobs obtained by participants in such programs during the high school years were in the "youth" labor market and typically provided little on-the-job training and few internal promotion opportunities. In addition, several of the schools administering work study programs appeared to view them as strategies either for keeping potential dropouts in school by minimizing the time they had to spend in the classroom or for allowing "troublesome" students to leave school early in the day to take a "job."

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[1] For a more detailed discussion of the "bridge job" concept, see: (i) Osterman, Paul, The Youth Labor Market, a report prepared for the New England Regional Office of the U.S. Department of Labor, Boston, 1974; (ii) Osterman, Paul, "The Structure of the Labor Market for Young Men," unpublished working paper, Department of Economics, Boston University, Boston, 1977.

(6) The vast majority of the students in all programs lacked basic information about the local labor market, including "where one would go to look for work." Their knowledge was primarily restricted to proper methods of dressing for an interview and conducting themselves during an employment interview. Only one-sixth of all the students and one-tenth of the general academic students mentioned that they possessed knowledge of "where to look for work."

A major role remains for state and local educational agencies to improve the knowledge students have about the operation of the local labor market. This knowledge should extend beyond that of information on the job duties of workers in various occupations and the wages prevailing on such jobs and should extend to more detailed knowledge of where major employers of workers in these occupations are located and the nature of hiring requirements and recruitment methods of such employers.[1]

(7) The effectiveness of cooperative and work study programs in preparing students for the transition from school to work is critically dependent upon their ability to provide job opportunities to students during the high school years. The number and nature of such opportunities will be influenced by overall employment conditions in the local labor market.[2] This will be particularly true for the cooperative programs, which are dependent upon active involvement of employers in the durable goods and contract construction industries, both of which are quite sensitive to overall economic conditions. Thus, the success of such cooperative programs will be determined in part by the success

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[1] A recent study of labor supply sources utilized by private employers of workers in a selected number of occupations with above average projected numbers of job openings revealed that for a given occupation, the recruitment methods of firms tended to vary by their employment size, class and industry group. See: Sum, Andrew; Sawhney, P.K., Mazzeo, Katherine, Sources of Labor Supply in Projected High Net Demand Occupations, Boston, 1977.

[2] See Levitan, Sar A., "Coping with Teenage Unemployment," The Teenage Unemployment Problem: What are the Options?, A Report of the Congressional Budget Office, U.S. Government Printing Office, Washington, D.C., 1976, pp. 62-66.

of national economic policymakers in providing a full employment economy.

(8) Another disadvantage of vocational education, including cooperative, is the limited number of skills that can be taught in the classroom. In addition, in some trades, secular trends and the relocation of industries have steadily reduced job opportunities for students. The older, more established vocational programs found it difficult to adapt to such transformations in the local economy short of phasing themselves out. Consequently, high support work study programs that impart basic knowledge and attitudes about the labor market and work have a role, because they are not bound to particular skills and hence to specialized shops and teachers.

(9) If the choice were between a regular vocational and a coop vocational program, the ability of the latter to enroll more students in the same physical plant would tend to make it more "cost effective," all things being equal. In turn, work study programs would be more cost effective than either of the vocational programs.

(10) Public policy should concentrate on (a) creating a corps of professional high school employment counselors, as distinct from guidance counselors; (b) providing detailed information on a continuous basis about the quantity and quality of job opportunities for youth in the local labor market, as well as reliable projections about future trends; and (c) developing a corps of job developers who would maintain close continuous links with local employer so that employment counselors would have enough knowledge about hiring standards and internal labor markets to make realistic placements, and employers would have enough confidence in the process to accept referrals from the schools.

(11) Few of the vocational, but none of the work study programs, had links to trade unions, even where coordination was desirable for acceptance by students of apprenticeship programs. The possibilities for, and the potential advantages of, such relationships need further exploration. At present the trade unions perceive vocational programs as sources of inadequately prepared, potential competitors for jobs, and the vocational programs perceive the unions, whether industrial or craft, [illegible] barriers to placement.

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1. See Levitan, Sar A., "Coping with Teenage Unemployment," The Teenage Unemployment Problem: What are the Options?, A report of the Congressional Budget Office, U.S. Government Printing Office, Washington, D.C., 1976, pp. 62-66.

(12) With some limited exceptions, vocational and work study programs had no ties to large major market employers, in part because the latter preferred to hire workers who had completed school for full-time jobs. The large employer, especially where serious industrial accidents were possible, would or could not employ young people under 18 years old. Legislative changes in workmen's compensation laws as well as changes in insurance industry practices probably would be necessary to open jobs to high school youths with primary employers in manufacturing and in transportation, communication and public utilities. Changes in state and municipal civil service regulations might also be necessary to accommodate high school students.

(13) Large employers also would have to be shown that half-day or alternate-week schedules were economically feasible, and unions, where they did exist, that such schedules did not take jobs from regular members. Cooperative vocational and work study employment opportunities are more likely to be provided by employers who (a) normally have unusual schedules because they operate on a continuous basis or have peak loads on weekends and holidays or during the evening; or (b) have adopted some form of flexitime. High school youths might serve as a supplementary labor force being prepared for regular jobs in such establishments.

(14) All schools could not initiate or pursue work study or cooperative vocational programs simultaneously without effective integration of efforts to avoid duplication in job development and referral, and without an expansion of the kinds of jobs and employers accessible to high school students. If such programs become a normal part of the school system, reevaluation of the role of state employment service agencies would be needed.

APPENDIX A

1972 Interview Questionnaire

QUESTIONNAIRE
CLASS OF 1972

INTERVIEWERS: _____
SCHOOL: _____
DATE: _____

1. Name _____ (Last / First / M.I.)
2. Phone: _____

3. Address _____ (Apt. No. / No. & Street / City/Section of Boston / State Zip)

4. Date of birth: Month _____ Day _____ Year _____

5. Birthplace _____ (City / State / Foreign Country)

6. Did you attend this school for 10th and 11th grade?

Yes _____ No _____

If no, what schools did you attend?

Grade	School	City	Public	Parochial	Other
10					
11					

7. Program or course of study. (Student may be in more than one program at the same time.)

- _____General academic
- _____College preparatory academic
- _____Distributive education. Co-op job? _____
- _____Office occupations (Business Practice). Co-op job? _____
- _____Vocational (non-co-op). Trade: _____
- _____Co-op Vocational. Trade: _____ This is a program in which on-the-job training is directly related to school program.
- _____Co-op Non-vocational. This is a program in which the student's job is not directly related to school program.

CAREER GOALS

8. What do you expect to do after graduation?

- _____Study further. What type of program? _____
- _____Military service
- _____Work
- _____Other. Specify: _____
- _____Don't know

9A. (If plan to work full time) Do you already have a job for after graduation?
Yes _____ No _____

B. If yes - Job Title _____
Company _____
Company's products/services _____
When did you find the job? _____
How did you find it? _____
Why did you take it? _____

10A. (If plan to work full time but does not have a job yet)
What type of joy do you want? ______________________________

B. Is anyone helping you to find a job for after graduation?
Yes _____ No_____ (If yes) Who?______________________________

(If no) Do you plan to ask for any placement help at school?
Yes _____ No_____ (If yes) From Whom?______________________________
Why or why not? ______________________________

11. (If applicable to job plans) Do you plan to join a union?
Yes _____ No _____
Why/Why not? ______________________________

12. What do you want to be doing five years from now?
____

13. What part of your high school program do you think will be most useful in your career plans? ______________________________

14A. (If has not already stated plans to study further)
Do you think you will need further training after high school for the kind of work you want to do?
Yes _____ No _____

B. If yes, what kind of training?
____

WORK HISTORY

1. How many jobs have you held since you began high school? (Include coop, after school, weekends, summers _____________ (If none, go to Question 28)

2. What jobs have you held:

	Current or Final Job Title	Company	When (Year in School)	How Long?	Starting Wage Rate	Final Wage Rate	Comments on Job Not Included Below
1							
2							
3							
4							
5							
6							

If 3 jobs or less, ask the following question for all jobs.

If more than 3 jobs, say:

"I would like to ask you a few more specific questions about some of these jobs." Ask the following questions for the current or most recent job, and the two other jobs the student has held longest or that have been in his trade. In generalized questions such as No. 13 or 17-25, please ask student to specify which job his answer applies to.

I. Company background

3. No. of employees ____________________
4. Company's products/service ____________________
5. Company location ____________________
6. Distance from home ____________________
7. Distance from school ____________________
8. Method of transportation ____________________
9. (Not co-op) When do/did you work?
   -Full time____________________
   -Part time____________________
   -After school____________________
   -Weekends____________________
   -Summers____________________
10. (Co-op) When do/did you work?
   -Alternative week____________________
   -1/2 day____________________
   -other (specify)____________________
   -summer (FT)____________________
11. Average No. of hours/week____________________

II. Selection of Job

12. How did you find each of these jobs?____________________
13. Were you looking for work before you found these jobs? Yes___ No___
14. How long did you look? ____________________
15. (If placed by school) Do you think you could have gotten a job as rapidly without the school's help? Why/Why not? Yes___ No___
   ____
   ____
16. (If co-op found job without school help) Do you think you got the job more easily because the employer knew the school sponsored you?
   Yes _____ No_____ Why/Why not?____________________
   ____
17. Why did you decide to get a job?____________________
   ____

18. Why did you take these jobs? ____

III. Work experience

19. Do you like these jobs? Yes _____ No _____ Why/Why not? _____

____

20. Would you take any of these jobs again if they were offered to you?
Yes_____ No_____ Why/Why not? ____________________________

____

21. Were you given added responsibilities as you get more experience on any of these jobs? If yes, list title of first job. Yes ____ No_____
Title of first job ____

22. (If no longer there) Why did you leave each job?______________________

____

23. Do (or did) you receive any formal training on any of these jobs? If yes, which job? What kind of training? Yes_____ No _____

____

24. Do you have a regular supervisor who instructs you or do you learn by doing? ____

25. Is your on-the-job training related to your courses in school? How? (Directly or indirectly) Which courses? Yes _____ No_____

26. Do you think what you are learning on the job is valuable to you?
Yes_____ No_____ Why/Why not? ________________________________

____

27. Has your job experience given you any ideas about: What work you do or do not want to do? ____
What is expected of you at a job?______________________________________
What training you will need?____

28A. Have you ever looked for work but been unable to find a job?
Yes _____ No_____

B. (If yes) When? ______________________________. What kind of job were
(month) (year)
seeking?____

C. Were you offered any jobs? Yes_____ No_____. Why didn't you take them?

____

29. (If has looked for work but never worked) Why did you decide to get a job?____

30. (For co-op students only) How does the school supervise your jobs?

____

31. Do you think that from your experiences in looking for jobs and/or having jobs you have learned anything useful about how to look for a job (such as how to approach an employer, how to have an interview)? Yes _____ No_____
Comment: ____

SCHOOL HISTORY

1. What schools did you attend for 7th, 8th, and 9th grades?

Was school public, parochial, or another private school?

Grade	School	City	Public	Parochial	Other
7					
8					
9					

2. Did you have any industrial arts courses in junior high school?

Yes_____ No_____

(If yes) In what?______________________________________

3A. Did you ever talk to your junior high school guidance counselor?

Yes_____ No_____ No counselor in school _____

B. (If yes) What about?

_____ Choosing high school program
_____ Vocational plans
_____ Grades
_____ Choosing junior high courses
_____ Discipline
_____ Other. Specify: ______________________________

C. (If yes) How often?_____times per year

D. (If yes) Did you ask to see him or did the counselor schedule appointments?

_____ Student initiated
_____ School initiated
_____ Both

Comments____

SELECTION OF HIGH SCHOOL AND HIGH SCHOOL PROGRAM

1A. Why did you go to this high school? Only school in town ____________

____

Other reasons:____

B. Did you consider going to other high schools? Yes_____ No_____

Which ones? Why? Why didn't you go to them?

School	Why considered	Why not go

2. What were your reasons for choosing this high school program?

____

____

3. Was any person important in influencing your choice? For instance:

Father ____
Mother ____
Brother(s)/sister(s) ____
Other relatives ____
Friend(s) ____
Jr. High Guidance Counselor ____
Jr. High Teacher. Subject: ____________ ____
Other. Specify: ____________ ____

4. Was it easy or hard to get into your current high school program?

____Easy ____Neutral

____Hard ____Automatic

5A. Did you ever consider going into any other programs (including other specific trades)? Yes____ No____

B. (If yes) Which ones?____________________________

C. Why?____________________________

6A. (If yes to question 5A) Did you transfer to another program after you entered high school? Yes____ No____

B. To what? ____________________________

C. Why? ____________________________

7A. Have you ever talked to your high school guidance counselor?

Yes____ No____ No counselor in school ____

B. (If yes) What about?

____Choosing courses in high school

____Plans for post-graduate education

____Grades

____Vocational Plans

____Other. Specify: ____________________________

C. (If yes) How often?____times per year

D. (If yes) Did you ask to see him or did the counselor schedule appointments?

_____Student initiated
_____School initiated
_____Both
Comments: _____

8A. What do you see as the advantages of your high school program?

B. The disadvantages?

C. How do you think it could be improved?

9. (If in co-op, work-study, or trade program) do you think you would have stayed in school if you were not in this program?
Yes _____ No_____
Comments: _____

PERSONAL BACKGROUND INFORMATION

1. How long have you lived in your current neighborhood (if Boston resident) or town (outside of Boston)? Years_____ Months_____

(If has lived there less than five years, or indicates has moved out and and back) where else have you lived during the last five years?

Years	Neighborhood/Town	How Long?

2. What is (was) your father's major (longest held) occupation?
3. What was the last grade in school completed by your father? _____
4. What is (was) your mother's major (longest held) occupation? (include housewife) _____
5. What was the last grade in school completed by your mother? _____
6A. Number of brothers and sisters ____B
____S
B. Are they older or younger? _____

Do you have any questions or comments you would like to add?

APPENDIX B

Summary and Conclusions of Interim Report on Class of 1966[a]

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[a] A limited number of copies of the whole Interim Report is available on request.

SUMMARY AND CONCLUSIONS

In terms of our original criteria, the six years of labor market experiences beginning with mid-1966 of our sample members show the advantage of a cooperative program or a trade school program over a technical school, a general academic, and probably a college preparatory program.[1] Using these same criteria, the evidence does not show a similarly marked advantage for cooperative programs as compared to trade school programs. Nonetheless, despite about the same I.Q. scores on the average, the coop graduates seemed to have done somewhat better than the regular vocational graduates in terms of final hourly earnings, because of the poor showing of the graduates of technical programs.[2]

The coops also may have done better in earnings than trade school graduates when individual trades are considered. In addition, the coops showed more occupational and employer stability, which together suggest more initial certainty about their labor market goals. In only one way did the regular vocational graduates possibly do better. They averaged fewer months of unemployment. Still, the higher hourly earnings, on the average, of the coops conceivably could have more than compensated for their greater amount of idleness.

If account is also taken of the costs of cooperative programs and of regular vocational programs, it could be argued that the former can educate and train students for less for at least two reasons. While a cooperative program may have more staff personnel, such as coordinators, the cooperative nature of the program permits much more intensive use of equipment and facilities. With the same capital investment, the coop program could service twice the number of students that a regular vocational program could service. A second reason is the indirect factor of the earnings of coop students. These earnings represent opportunities that students other than coops do not have available during school hours.

While evidence is still sketchy at this point, it seems that coop programs are more likely to hold potential dropouts in school. An important attraction of coop programs, irrespective of interest in a specific trade, is the chance to be away from the physical school setting and its regulations for half the school year, and an opportunity to earn money at the same time.

The absence of any apparent evidence of sharp labor market advantages for cooperative education compared to trade school programs does not mean that if all other things were held constant, cooperative education might not prove more effective in helping students make the transition from school to work.

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1. Specifically excluded were college preparatory students who did complete college. College preparatory students who did not complete college did no better than any of the other groups.

2. The wage differences among our sampled groups should not hide the fact that the coops, the trade school graduates and the college prep graduates were earning well above the average for production workers in the Boston SMSA in 1972, and the other groups were not far below, keeping in mind that the members of our groups had been in the full-time labor force comparatively few years. Data from the 1970 Census lead to the same conclusions. The projected annual earnings of our sample would closely approximate those of workers in the Boston SMSA, excluding professional, technical and managerial workers.

A number of factors were revealed by the personal interviews with our longitudinal sample cohort of 1972 graduates (not discussed in this report) that mail questionnaires could not capture. The personal interviews suggested that the reasons a student chooses a vocational education and even a particular trade program can be decisive in determining whether he pursued his trade diligently and enthusiastically, and considers it a long run commitment.

An important influence in this matter of interest and motivation was the neighborhood character of the schools that offered cooperative programs. There were indications that a not insubstantial number of young men may have selected a particular coop program because it was the lesser of two evils. These students may not have been anxious to enter a general academic program, nor have harbored a particular zeal for the specific trade offered in their local high school. Still they saw it as the least undesirable of their alternatives. In addition, neighborhood clannishness, based upon ethnic and religious considerations, and the unfavorable reputation of the city-wide vocational high school may have precluded it from serious consideration. In contrast, students who were interested in a trade showed strong interest and motivation when they made the decision to travel away from their neighborhood school to a city-wide vocational high school in order to obtain the shop of their choice.

Similarly, the ability of a graduate to find work in the unionized sector of a trade is another possible reason for a difference in final hourly earnings. If the coop coordinator, who was responsible for many initial placements of coop students, had few union links, while the vocational teacher, who was responsible for many initial placements of regular vocational students, had such connections, students of comparable ability and skill might well have different earning opportunities in the same trade. Unfortunately, even the same trade could not always be held constant, because there inevitably were graduates from regular vocational programs in trades that were not offered on a cooperative basis. Plumbing and printing are two important trades taught in vocational high schools, but without cooperative counterparts in our sample. Both trades have a union and non-union sector with higher wage rates in the former.

Finally, the six years which were covered in our study were ones in which the job market initially was highly favorable to job seekers but at the end became much more severe. Our graduates on the average began their working careers when unemployment was low, and it was not until 1969-70 that unemployment rose. The tightness in the labor market when sample members completed high school might have reduced the extent to which employers could exercise preferences for graduates from one kind of program over another, or for individuals with other characteristics over those lacking them.

In short, offsetting but still unmeasured variables might make cooperative and regular vocational programs seem more nearly equal in effectiveness than they are in reality. Our longitudinal sample of the class of 1972, because of the in-depth nature of the personal interview, should allow us to take into account some of these variables. These would include the reasons students chose a particular school and program, their interest in their specific trade curriculum, the success teachers and the school staff have had in developing employment opportunities and making placements, the reasons for periods of unemployment and what sample members did to find work, the quality of the teaching and shop equipment in different schools and programs, and the quality of the training offered by different employers. For example, a coop school program might be handicapped by antiquated facilities and equipment, and by a neighborhood location without easy or quick access to job opportunities. A regular vocational school might not be so handicapped. One might easily multiply the differences among programs that could account for differences in apparent effectiveness independent of whether or not administered cooperatively.

More conclusive evidence on the relative merits of coop and regular vocational programs should be available when the data from the 1972 class are examined. However, we can suggest to teenagers, who are unlikely to finish college, that at least in the Boston area for the short run (about six years, the 1966-1972 period covered by this report), the trade-oriented high school, whether coop or not, probably offers more advantages in the labor market than the non-vocational high school programs.

The coop graduate apparently can do at least as well in the labor market in terms of his future earnings as a trade high school graduate, and in addition, can earn money while in school. Moreover, his transition into full-time employment seems to be quicker and smoother. The high school programs that do not provide vocational training or provide only limited amounts of it seems to be a disadvantage unless a student continues and completes higher education beyond secondary school. In the Boston area, at least, there is some indication that technical school programs may not be a successful substitute for trade schools or coop programs if a student enters the labor market without further education.

Despite higher I.Q. test scores, graduates of college preparatory programs without college degrees were earning by 1972 about the same as trade school and coop graduates. Moreover, on the average, these college prep students spent money and a year of potential working time continuing but not completing their educations.

The quality of information and the degree of understanding desired by the researchers as not forthcoming from a mail questionnaire asking about events and reasons over an extensive period. Failures of memory and a possible unwillingness to devote much attention to the questions may have been responsible. In addition, locating individuals in our mobile society can be costly and time consuming. Finally, a mail questionnaire assumes functional literacy on the part of the recipients. There was evidence that even college preparatory graduates from schools with good reputations did not or could not understand plainly worded instructions and questions.

It is still to be demonstrated that the individual's motivation and interest in an occupational area may not account for a major part of our results.

Interviews with school officials and students indicate that the method by which applicants are selected for programs have an important bearing on our results. When school facilities are not fully used, there is an inevitable tendency to enroll students with little interest in a program, except as an escape from some less desirable program. On the other hand, when programs have limited space compared to student demand, they can be more selective.